IDG .net

RETURN TO SANITY

More candidates, faster recruiting, reasonable salaries: It's becoming an employer's market. Page 44

VIOLATIONS OF PRIVACY

Privacy rules leave businesses *and* consumers at risk, says Rep. Ed Markey. It's time for a change in Congress. Page 25

SCALING UP

Handle e-commerce growth by designing a big infrastructure but building small. Page 56

COMPUTERWORLD

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APRIL 2, 2001 ▪ VOL. 35 ▪ NO. 14 ▪ $5 COPY

PABLO BARTHOLOMEW/LIAISON AGENCY

CONSULTANT Rama Sivaraman says Citicorp Overseas Software has a rigorous process that yields fewer software development defects.

INDIA INC.

Farming out software projects to India isn't just for low-level maintenance work anymore. India's programming shops are developing top-notch applications with a fanatical devotion to quality that puts many U.S. operations to shame. There are lessons here for American IT departments, if only they'll listen.

The story, by Gary H. Anthes and Jaikumar Vijayan, begins on page 40.

NEWSPAPER

IT RECRUITERS EXPLOIT LAYOFFS

Companies jockey to attract downsizing victims to fill long-vacant technology jobs

BY JULEKHA DASH

Corporate layoffs may signal a gloomy economic outlook for most folks, but the recent spate of downsizings has been a boon for IT managers in dire need of skilled technologists.

One of the attendees at a staffing conference in Chicago last week sponsored by the International Quality and Productivity Center was Allstate Insurance Co., which plans to add at least 500 IT professionals to its staff this year. The Northbrook, Ill.-based insurer is eyeing former engineers and architects from companies that have announced layoffs recently, including Montgomery Ward LLC, Motorola Inc. and Cisco Systems Inc.

"We've been pretty proactive about contacting companies" that are laying off IT employees, said Lorraine Balun, Allstate's senior manager of technical recruiting. She said her strategy has been to forge relationships with the human resources departments at companies that are dismissing people to find appropriate candidates for Allstate.

Other companies, such as Deerfield, Ill.-based Baxter Healthcare Corp., are contacting outplacement contractors hired by firms that are downsizing. Jeannie Pflueger, Baxter's senior staffing representative, said this strategy has had mixed success.

Recruiters, page 16

LEGISLATORS EYE CYBERSECURITY

Effort aims to boost public trust in Internet

BY DAN VERTON

Corporate America's reluctance to be more forthcoming about internal data security measures has come under scrutiny on Capitol Hill.

Buoyed by the effectiveness of the Securities and Exchange Commission's requirements for companies to detail their Y2k preparedness in their earnings reports two years ago, legislators are considering a similar model for cybersecurity.

As with Y2k, the government can help ensure public trust and confidence in the Internet by requiring firms to disclose the security measures they have in place, said Sen. Robert Bennett (R-Utah),

Security, page 16

THE ASSOCIATED PRESS

SEN. BENNETT: "The issue is not privacy. . . . We want security."

BUSH REJECTS EU PRIVACY PLAN

Says financial firms would be burdened

BY PATRICK THIBODEAU
WASHINGTON

The Bush administration's rejection last week of a European privacy plan has left multinational financial services firms in limbo over how to export data to the U.S. without violating Europe's privacy laws.

Officials from the Department of Commerce and the Department of the Treasury said the proposal to have financial services firms sign contractual agreements guaran-

Privacy, page 12

FIRMS FIND PORN CLOSE TO HOME

Mainstream, illegal Web sites share hosts

BY DEBORAH RADCLIFF

Many mainstream online businesses not only share floor space with servers that host pornography but they also appear on publicly accessible server traffic lists with those and other adult content sites, a *Computerworld* investigation has found.

It's unlikely that a legal investigation into a porn site, like two child porn sites discovered during this investigation, would jeopardize service or in any way involve other companies hosted under the same roof. But the potential damage to a company's reputation is palpable if customers were to find an organization's name juxtaposed with that of a site hosting clearly illegal content

Pornography, page 73

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In 1969, we worked on a SECRET GOVERNMENT PROJECT *that became the Internet.*

OHHH, SO THAT'S WHY NOBODY KNOWS WHO WE ARE!

Back in the '60s a small band of computer whizzes was hired by the Department of Defense to work on the ARPAnet. Or what is commonly known as the forerunner to the Internet. These visionaries came from the legendary research and development company, BBN.

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A BRIEF HISTORY

BBN

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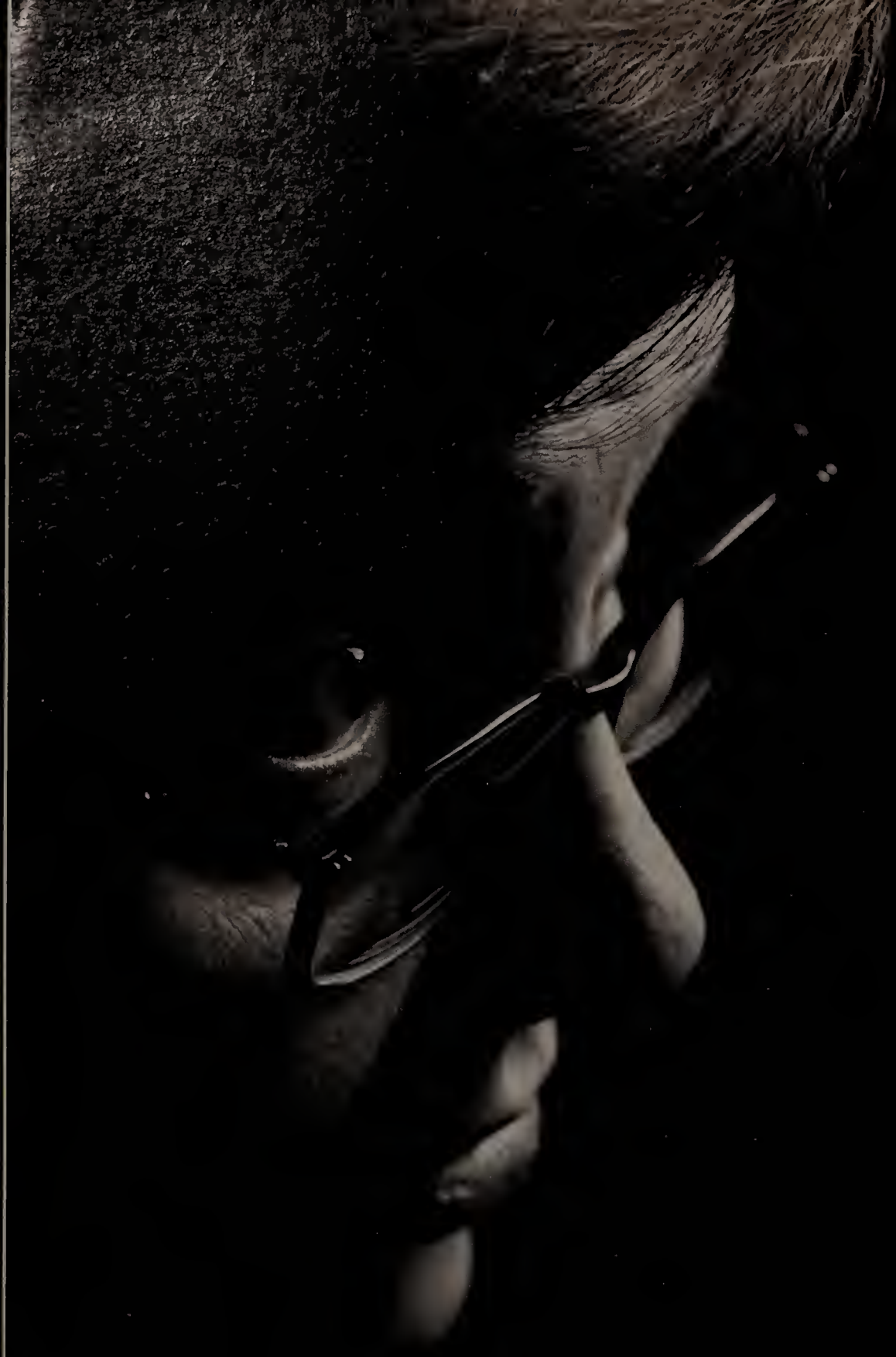
In 1997, BBN was acquired by GTE, the company that created our high-speed, 17,500-mile, Tier 1, fiber-optic network.

GENUITY

In 2000, GTE Internetworking became an independent company, renaming itself Genuity. Today, Genuity offers a vast array of managed Internet services, including Black Rocket.™

GENUITY



Now that the new economy's old,

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The Crossroads A-list has. Twice.

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See for yourself what more than 200 Kintana customers already know.

Nina Lytton, President
Open Systems Advisors, Inc.

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HACKER TRAPS

Deceptive networks called "honeypots" can lure internal or external bad guys into easily watched spaces. Page 58

T-E-A-M

You can have all the talent you want, but when it comes to winning the big games, you need people with different skills doing different things and working together. That's what Mary Ellen Brantley (above) says in her book *Winning the Technology Talent War* (co-authored with Chris Coleman). The book breaks down the IT team into five roles. She talks about them in an interview with *Computerworld*. Page 43

COMPUTERWORLD THIS WEEK

APRIL 2, 2001

NEWS 6

6 THE LAPD IS developing a risk-management tracking system that will monitor officers' conduct.

6 NEXTEL ANNOUNCES two Java-enabled phones, the first ones available in the U.S.

7 THE E-SIGN ACT needs changes, business and consumer groups tell Congress.

8 E-MAIL TAKES FLIGHT as Virgin Atlantic starts to offer its passengers low-speed Internet access.

8 EX-WORKERS CLAIM Computer Associates fired them to cover large losses, cut expenses and avoid paying for severance packages.

10 IRIDIUM SATELLITE goes live again with its global telecommunications network. Its owners hope to attract the customers who never came after the company was first launched in 1998.

12 PREREGISTERING for the domain names that will become available later this year carries risks for users, ICANN warns.

14 IBM'S 64-BIT INTEL server puts it in the fierce market battle for enterprise Windows 2000 Datacenter applications.

MORE

Editorial/Letters..... 24, 25
How to Contact CW 72
Shark Tank 74
Company Index 72

BUSINESS 31

32 BACKUP PLANS can help companies rebound quickly when their ASPs go belly-up.

36 HOSPITAL WEB SITE gets a $16 million makeover, despite looming costs from HIPPA privacy and security regulations.

36 CORPORATE VETERAN tells *Computerworld* why the online exchange he's now heading has what it takes to survive.

WORKSTYLES

37 LANDS' END'S workforce focuses on family, culture and efforts to move legacy staffers into more trendy technology, says IT manager Phil DeKok.

40 INDIAN SOFTWARE firms are now in a position to teach U.S. businesses a thing or two about quality, after years of being considered second-tier.

44 THE HIRING SCENE shifts away from the insanity of the past few years and back to an employer's market.

TECHNOLOGY 47

SECURITY JOURNAL

52 ADDING A NEW Internet service provider and upgrading the corporate firewall make for a long week for security manager Vince Tuesday.

HANDS ON

54 MOTION-SENSING technology guards against laptop theft with easy, intuitive protection that doesn't inconvenience the user.

56 E-COMMERCE architectures that accommodate rapid growth depend on designing separate components that can be beefed up as needed.

QUICKSTUDY

60 OPENGL, an open-source library of graphics functions maintained by an industry consortium, simplifies life for developers.

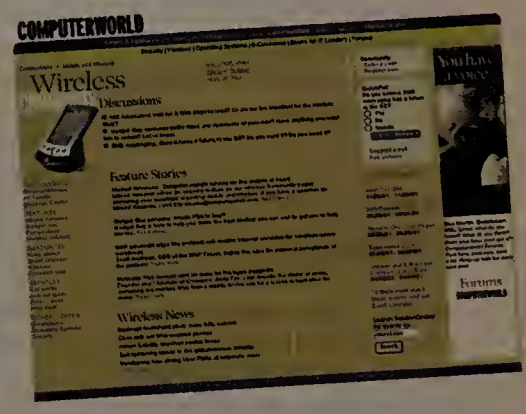
EMERGING COMPANIES

61 WATCHFIRE'S TOOLS identify problems with Web site content that inhibit user activity, which can lose sales.

ONLINE

We've redesigned *Computerworld*'s entire **communities section.**

First, we launched a new community that focuses on **wireless and mobile issues**. Find it at *www.computerworld.com/wireless*



Next, we revamped **all our communities** to make them easier to navigate. *www.computerworld.com/community*

Finally, we upgraded our **discussion forums** with a new look and new software that allows customization. *http://cwforums.computerworld.com/webx?forums*

OPINIONS

24 MARK HALL says that despite working in a culture that thrives on change, some IT professionals find that long-term thinking is the most important part of the job.

24 PIMM FOX offers a list of 10 bright spots coming out of the downturn in the high-tech economy.

25 EDWARD J. MARKEY, a U.S. representative (D-Mass.), says Congress must enact privacy laws with three elements.

27 JOHN GANTZ writes of how a 10-year-old spoof-turned-fact points up a lesson on ensuring security in online transactions.

27 BILL LABERIS warns that IT managers who resist the rise of wireless devices do so at their own peril.

37 CHARLIE FELD tells how you can perform a "checkup" on your IT organization, especially in times of economic uncertainty.

74 FRANK HAYES says that meeting Europe's tough privacy standards could require big changes in IT but may also put you in hot water with your senior executives.

AT DEADLINE

Sparse Spectrum

After six months of study, two federal agencies said they're unable to allocate additional radio frequency spectrum for advanced broadband mobile wireless services without causing harm or interference to existing users. The Federal Communications Commission, in a report released on Friday, said providing high-speed mobile services in the 2,500/2,590-MHz band currently occupied by fixed wireless operators and educational institutions couldn't be accomplished without "extensive interference." The FCC added that there's no "readily identifiable" alternative frequency band to accommodate fixed wireless users and that any shift in frequencies for those users could cost as much as $19 billion.

Meanwhile, the National Telecommunications and Information Administration said federal users, primarily workers at the U.S. Department of Defense, couldn't give up their frequencies in the 1,710/1,850-MHz band for years – until 2030, in the case of Pentagon satellite systems. The cost of reallocating federal users was pegged at $4.6 billion.

CompuBank Closes

Alpharetta, Ga.-based NetBank Inc. said last week that it will acquire all of the deposits of Houston-based CompuBank, which is shutting down. NetBank Chief Financial Officer Robert Bowers said CompuBank's customers will be able to continue banking until the conversion is complete, which will be sometime in the second quarter. Customers received an e-mail Thursday informing them of the situation.

Short Takes

A federal bankruptcy court judge approved the proposed sale of speech recognition technology from beleaguered software vendor LERNOUT & HAUSPIE SPEECH PRODUCTS NV in Ieper, Belgium, to automotive supplier VISTEON CORP. in Dearborn, Mich. The decision enables the two companies to settle a five-month-old legal battle. . . . A Washington law firm is dropping a class-action suit filed against IBM over its alleged business ties to the Nazi regime in Germany during World War II.

Police Policed With Data Mining Engines

LAPD will use risk management system to track officers' conduct, per a consent decree

BY LUCAS MEARIAN AND LINDA ROSENCRANCE

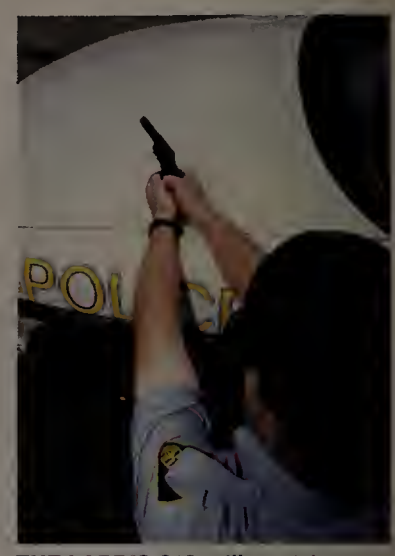
AFTER DECADES of mounting complaints about the use of excessive force, false arrests and racial profiling, the Los Angeles Police Department (LAPD) is being forced to implement a computerized risk-management system to track officers' conduct and performance.

The LAPD's system will cost an estimated $13 million and take two years to install, but it will eventually track the activities of 10,000 officers. Last week, the department said it had chosen a vendor for the application, which analysts say could have a wide array of uses in corporate America, from evaluating employee performance to reducing costs.

Liekar Strategic Solutions Corp. won the contract to install what it calls its Risk Management and Analysis Tool. It's the third time the Pittsburgh-based consulting firm has been awarded a bid to install such a system in a large police department under a federal consent decree. The LAPD agreed in November in a consent decree to change its management practices by using a computer tracking system that alerts supervisors of officers accused of brutality and other abuses of power.

Sgt. Gregory Valenti, who's in charge of the LAPD's Training Evaluation and Management System, or TEAMS II unit, said he has high hopes that the tracking system will not only be useful in responding to misconduct, but that it will also put a dent in civil litigation. Last year, the LAPD paid out more than $28 million as a result of civil lawsuits, according to police. But Valenti said the system's main use will be to help management stay on top of trends.

For the past year, the New Jersey State Police have been working on installing a similar tracking system, also built by Liekar. In 1997, the Pittsburgh Police Department was the first city in the nation to use a completely automated computer system to detect misconduct by its officers, according to Cmdr. Regina McDonald.



THE LAPD'S $13 million risk management system will be used to track 10,000 officers' activities.

How It Works

The system tracks officers' use of force, search and seizure, and citizen complaints, as well as criminal charges or civil lawsuits filed against officers. Pittsburgh's system, called the Performance Assessment and Review System, also tracks commendations and awards earned by officers. It alerts police officials, who check the system at least once each day, to any inappropriate behavior by an officer.

"Previously, different information was kept in different locations. When we wanted certain information, we would have to call the various departments for it," McDonald explained. "Now it's right at our fingertips."

Liekar CEO Robert Liekar said the tracking system is based on an Oracle database running on servers from Sun Microsystems Inc. or on IBM RS/6000s.

Samuel Walker, a criminal justice professor at the University of Nebraska at Omaha, performed a review of the tracking system for the U.S. Department of Justice. He said that although reports of police misconduct in the Pittsburgh Police Department have dropped by more than half, on average, since its tracking system was installed, data mining engines are only as good as the information they're provided.

"These things are not an alarm clock. You can't expect to buy it off the shelf, program it, set it and expect it to go off," he said. "The real issues are not issues of software but of administration." ◗

Nextel Ready to Offer Java-Enabled Phones

Two models will be released this month

BY MATT HAMBLEN

Nextel Communications Inc. today is announcing two Java-enabled wireless phones, the first such phones to be commercially available in the U.S. Analysts said they believe the J2ME-enabled phones will be easier to use for business applications than Wireless Application Protocol (WAP) phones are.

The reason for the greater ease of use is that Sun Microsystems Inc.'s Java 2 Micro Edition (J2ME) can store data in the phones, rather than requiring a constant Internet connection for access to applications, . said Alan Reiter, an analyst at Wireless Internet & Mobile Computing in Chevy Chase, Md. That constant connection can be expensive for users and causes frustrating delays during sending and receiving, he said.

Java-based capabilities should also help users personalize their phones with applications they can download, such as specific sales management tools, Reiter said.

But Java-enabled phones also require memory. Java had been considered a large-footprint operating system before the release of the stripped-down J2ME.

NEXTEL'S i85s will sell for $200.

David Bishop, an analyst at The Yankee Group in Boston, said it has taken a long time to simplify the use of Java-based applications on wireless devices.

But Reston, Va.-based Nextel has aided the process by allowing transfers of Java-based data via Nextel's Integrated Digital Enhanced Network channel, which enables two-way and cellular communications to occur over a single channel.

Two Nextel phones — the i85s, which will sell for $200, and the i50sx, priced at $150 — will go on sale sometime this month, company officials said. Both phones are manufactured by Motorola Inc. in Schaumburg, Ill., and will support J2ME and WAP.

Qualcomm Inc. in San Diego has developed a competitor to J2ME called Binary Runtime Environment for Wireless (BREW), which the company claims will require less space on devices than J2ME.

Four hardware makers have signed deals to put BREW on their devices, which should appear before 2002, a Qualcomm spokeswoman said.

Tokyo-based NTT DoCoMo Inc. released Java-based capabilities in Japan Jan. 26, which resulted in sales of 800,000 Java-enabled phones, company officials said. ◗

Businesses Seeking Changes to E-Sign Act

Say strict requirements may irk consumers

BY PATRICK THIBODEAU
WASHINGTON

Some businesses are expressing concern that the Electronic Signatures in Global and National Commerce Act, the law that gives electronic signatures the same legal weight as written ones, is creating obstacles to e-business, as well as affecting Web site design. And they're asking federal officials to make some changes to it.

The act, also referred to as E-Sign, became law in October, but a provision in the legislation required the Federal Trade Commission and the Department of Commerce to investigate the burdens and benefits of the law's consumer consent provisions and report back to Congress. The two agencies will hold a workshop on Tuesday to examine the issue.

John Buchman, general counsel at Arlington, Va.-based ETrade Bank, a subsidiary of ETrade Group Inc., said the main problem with the E-Sign legislation is the underlying premise that businesses are disinclined to protect consumers.

"There is this concern [among consumer groups that] in our haste to try to save money by not mailing out paper notices, we are going to run roughshod over consumer wishes, when in fact, we have every incentive to do what the customer wants us to do — otherwise, they will just go to another Internet bank or online brokerage firm," said Buchman. "What would be our incentive to want to get the customer upset with us?"

The law imposes a number of obligations on businesses, including a requirement that a consumer must "reasonably demonstrate" that he can accept materials electronically. If a consumer provides a company with an e-mail address over the telephone or by mail, for instance, the law requires that the consumer must also demonstrate that he can in fact conduct business electronically.

Buchman said he believes that redundancy may annoy some customers.

The E-Sign Act's requirements prompted Wachovia Corp., a financial services company in Winston-Salem, N.C., to make design changes to its Web site, said Ericka Crandall, manager of e-business policy at Wachovia. The company now has an E-Sign notice that spells out consumers' rights under the law. A consumer must first click on that agreement before clicking on the online services agreement.

The problem is that extra clicks aren't good business practice, said Crandall. "Each time a customer has to click, the likelihood of them finishing through that process is greatly decreased," she said.

Moreover, as new services that employ different document formats, such as the Portable Document Format, are put in place, consumers may have to demonstrate their ability to use those documents and again acknowledge the E-Sign agreement, Crandall said. E-Sign may actually hinder the use of new technology, she argued.

But consumer groups and some state officials are opposing any rollback of the consumer consent provisions, which they say are needed to protect against fraud.

"To the extent that E-Sign Act's requirements impose costs or limit options, the benefits that they confer on both the consumer and overall process seem to be well worth the burdens," wrote Kathleen Hamilton, director of the California Department of Consumer Affairs, in a letter to federal officials last month.

Behnam Dayanim, an attorney at Paul, Hastings, Janofsky & Walker LLP in Washington, who will be a speaker at Tuesday's workshop, said the federal review may be coming too quickly.

"We just finished a bruising battle" over the legislation, said Dayanim. "And it strikes me that people need some time before we go back and try to reopen it."

Dayanim also warned that businesses, in their efforts to roll back some of the E-Sign requirements, could end up with a more restrictive law. ◗

The Next Battle

Federal agencies, as required by law, are reviewing the consumer consent provision of the E-Sign Act. They will report to Congress later this year.

Business view: E-Sign's language is too specific and won't keep up with technology. Customers may resent consumer consent requiremcnts.

Consumer groups: Consumer protection provisions should be strengthened. Consumers may be at risk due to bad practices.

BroadVision Boosts Java Support in New Release

Move may spur firm's growth, says analyst

BY MICHAEL MEEHAN

The Java juggernaut knocked aside another proprietary vendor offering last week when BroadVision Inc. released its new One-to-One Enterprise 6.0 e-business platform with significantly increased Java support.

Now BroadVision users will be able to leverage the Java 2 Enterprise Edition (J2EE) technology, including the ability to transmit documents as JavaServer Pages. Simon King, vice president of advanced technology at Redwood City, Calif.-based BroadVision, noted that the company made the change because Java has become part of the prevailing e-business culture.

"You've got new, young developers who only have Java programming ability," he said.

In addition, all of BroadVision's 6.0 applications, due for release by the end of May, will leverage the One-to-One platform's Java technology.

Albert Pang, an e-commerce analyst at IDC in Framingham, Mass., said he believes the Java move is good news for the company. "Their platform was much more proprietary than others out there, and it was affecting their ability to grow," he said.

Competitors such as BEA Systems Inc. in San Jose and ATG Inc. in Fremont, Calif., already offer J2EE-compliant e-business application packages. Now BroadVision's 1,100-plus customers will be able to do the same if they migrate to the 6.0 release.

John Radko, chief architect for global product engineering at GE Global eXchange Services in Gaithersburg, Md., said his electronic exchange company runs its in-house applications primarily in a Java environment.

"It's fast, and it's clean," he said. "People aren't as patient with the Internet as they were two or three years ago, and you need to use tools that won't bog down your network."

With a new caching mechanism and graphical displays to show IT staff where system bottlenecks are occurring, BroadVision has taken aim at that corporate impatience.

In a joint venture with Amadeus Global Travel Distribution SA in Madrid, it has also taken aim at a new market: travel. The companies have merged BroadVision's Version 6.0 e-commerce software with Amadeus' travel booking engine.

The product debuts today, and it will aim to create cross-booking capabilities for travel Web sites. A hotel site will now be able to offer airfares, for example.

"The idea is to offer everything you can to that customer when they visit your site," explained Stewart Alvarez, director of e-commerce at Amadeus. ◗

Under the Hood

Here are some of the additions to BroadVision's enterprise platform:

- J2EE support, including Enterprise JavaBeans component architecture, JavaServer Pages technology and Java Servlet application programming interfaces (API)
- A file-based persistent memory cache mechanism
- An API that allows developers to create interfaces for nonprogrammers, allowing them to modify business rules
- Migration tools that circumvent the need to write new code

MOREONLINE

For forums and complete e-commerce news, visit our e-commerce community at **www.computerworld.com/b2b**

ISPs Aim to Stop DSL Outages

BY ASHLEE VANCE
SAN FRANCISCO

An association representing California Internet service providers (ISP) filed a motion with the state utilities commission last week to prevent NorthPoint Communications Group Inc. from causing "rolling blackouts for Internet access" for thousands of the state's users.

Facing financial difficulties, NorthPoint warned customers on March 28 that they should expect network outages and cancellation of digital subscriber line (DSL) services. The California ISP Association in Stockton, Calif., said on March 29 that NorthPoint had already begun a staged shutdown of its DSL services in the state.

NorthPoint doesn't sell services to end users directly; rather, it sells access to its DSL network to ISPs across the U.S.

NorthPoint urged its customers to contact their ISPs directly for information about future Internet service. ◗

Vance is a reporter for the IDG News Service.

Virgin Launches Airborne E-Mail, Limited Web Access

Carrier taps Tenzing for low-speed but low-cost system in its entire fleet

BY JENNIFER DISABATINO AND BOB BREWIN
SEATTLE

VIRGIN ATLANTIC Airways Ltd. is planning to offer low-speed e-mail and limited Web access aboard its long-range Boeing 747 and Airbus A340 aircraft by year's end and to eventually equip all 32 planes in its fleet for the service.

The London-based airline is following the lead of competitors including Dorval, Quebec-based Air Canada and Hong Kong-based Cathay Pacific Airways Ltd. All three carriers have opted for a system developed by Tenzing Communications Inc. in Seattle.

The Boeing Co., also in Seattle, plans to offer a high-speed airborne and Internet e-mail package called Connexion by Boeing. It will be installed primarily in new aircraft it manufactures. Alan Pellegrini, Tenzing's president, said his low-speed system offers cost and time-to-market advantages.

Since the Virgin Atlantic and Air Canada systems use existing seat-back phone wiring, retrofitting aircraft is relatively quick and costs about $50,000 per plane, said Pellegrini.

Dylan Brooks, an analyst at Jupiter Media Metrix Inc. in New York, agreed with Pellegrini's cost estimate for retrofitting older aircraft but said that Boeing can cut installation costs on its new aircraft if it installs wireless LANs on the planes.

Virgin Atlantic will offer air-to-ground connectivity of 2.4K bit/sec. through International Maritime Communications Organization satellites, compared with the 5M bit/sec. service planned by Boeing. Virgin Atlantic passengers will hook their laptops into data jacks on seat-back phones and use existing aircraft wiring to send e-mail to an onboard server that will cache the messages.

At intervals of an hour or less during each flight, the server will connect via satellite to the ground to send and receive e-mail.

The server also will hold a limited number of cached Web pages, with topical pages such as news feeds updated on an hourly basis.

Virgin Atlantic passengers without laptops or handheld computers will also be able to tap into the cached Web pages through a touch-screen in-flight entertainment system, Pellegrini said.

He also indicated that Tenzing is close to announcing several deals with other carriers, including a "major" Mideast airline.

Brooks said Tenzing is "well positioned for a slew of deals," including a formal supplier agreement with Airbus Industrie in Toulouse, France. But, he added, "Tenzing is not necessarily locked into this market. . . . There is still a demand for real-time Internet access." ◗

AT A GLANCE

Virgin Atlantic's E-Mail/Web Service

- Starts by year's end in Boeing 747 and Airbus A340 aircraft
- Offers 2.4K bit/sec. air-to-ground connections
- Onboard server offers access to cached news Web pages, updated hourly from the ground
- Low-cost installation, $50k per aircraft

Volvo Delves Into Web-based Car Design

New system should quicken processes

BY LEE COPELAND GLADWIN

One of the first steps in cutting vehicle production costs is integrating the design chain. So says Volvo Cars of North America Inc., which last week unveiled a Web-based collaborative design system that makes it easier to cull information from legacy systems and share it among its numerous project teams during the vehicle design process.

The Rockleigh, N.J.-based automaker said the new system will help minimize delays in releasing new vehicles and cut costs by ferreting out the valid product possibilities earlier in the design process, said Henrik Aberg, computer systems creator at Volvo's Monitoring and Concept Center.

Volvo's collaborative design system was built using Centric Innovation software from San Jose-based Centric Software Inc. Pricing for the product starts at $100,000, plus an additional access fee of $1,000 per user. Volvo officials wouldn't say how much it will cost the automaker to implement the new software system.

COLLABORATIVE SOFTWARE

Volvo, a subsidiary of Ford Motor Co., began piloting Centric Innovation in January and hopes to fully roll out the system by year's end at its Monitoring and Concept Center in Camarillo, Calif.

The software is integrated with Volvo's computer-aided design and manufacturing (CAD/CAM) systems and is used to evaluate alternative vehicle designs and conduct project reviews online, as opposed to building physical mock-ups of prospective vehicles. The system tracks design changes and notifies engineers whose specifications are affected by those alterations.

The Centric system will also help tackle the complex challenge of pulling data from different CAD/CAM systems and then updating those changes across the systems, Aberg said.

Volvo currently uses three different types of CAD/CAM systems for different phases of the vehicle conceptual design process. But some engineers, such as an aerodynamicist, might need to pull information from all three systems, which is a very complex process.

Making it easier to share data among the systems should shave time and costs off the design process, Aberg said.

Volvo may expand the system to include design shops in Sweden and Dearborn, Mich., as well as external suppliers, officials said.

Thilo Koslowski, an analyst at Gartner Inc. in Stamford, Conn., said that including suppliers in the collaborative design process will further reduce costs and speed up the vehicle design process.

"When manufacturers design a vehicle, they talk to suppliers all the time. But currently, this happens in one-to-one meetings," said Koslowski. "The marketplace is demanding new vehicles in shorter amounts of time, so the automotive industry has to be faster." ◗

Ex-Workers Allege CA Fired Them Due to Poor Earnings

BY MARC L. SONGINI

Final results from Computer Associates International Inc.'s fiscal year, which ended Saturday, probably won't be released until next month. But even as CA claimed it was off to a strong start in the fourth quarter, a number of former employees said the firm let them go to cover large losses.

CA responded: "Approximately 314 people were terminated in January for performance-related reasons," said a spokesperson for the Islandia, N.Y.-based company. "CA is continuing to hire employees, as needs arise. In calendar year 2000, for example, CA hired approximately 988 employees for sales positions in North America alone."

Nevertheless, a number of the ex-CA employees said they believe the firings were done unfairly to cut expenses and avoid the need to give the departing workers severance pay.

"Never in my five-year tenure with the company have they fired a large group of people," said Mary Welch, a former saleswoman who said she was recently fired and has hired a lawyer to secure severance money. "I do not believe my firing was due to performance, and I believe that there were other reasons that prompted the firings."

The company has had a tough time financially. During the past year, CA's stock has gone from a high of $66 per share to a low of $18. In the past two months, the share price has hovered between $20 and $40. Estimates of fourth-quarter revenue range from $1.4 billion to $1.2 billion, according to Multex.com Inc.'s financial Web site. CA said it was unable to make any additional comments on its future financials.

Nevertheless, CA is trying to get lean and, in practice, is doing well, said Rick Munarriz, a commentator at The Motley Fool Inc. in Alexandria, Va. But in December, he said, CA made its third-quarter estimates only by slashing expectations by half in the prior months. "How is CA doing now? Ask the economy," he said. ◗

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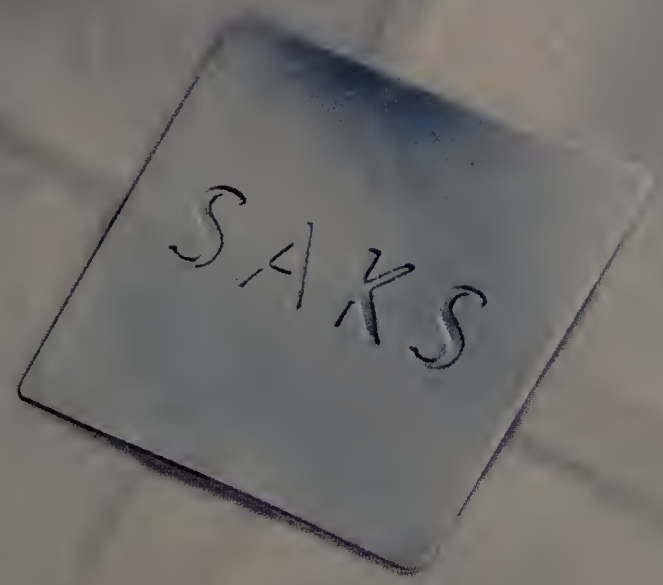

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BRIEFS

SAP to Acquire TopTier For $400M

Business software maker SAP AG has agreed to acquire San Jose-based portal software company TopTier Software Inc. for $400 million, SAP announced Friday. The cash deal, which is expected to be finalized in the second quarter, will make TopTier a wholly owned subsidiary of SAP. SAP said it expects to take a one-time research and development charge of no more than $50 million related to the deal in its next quarterly report.

Antispam Bill Debated

Antispam legislation approved last week by the U.S. House Committee on Energy and Commerce is facing opposition from some groups. The Unsolicited Commercial Electronic Mail Act, sponsored by Rep. Heather Wilson (R-N.M.) and Rep. Gene Green (D-Texas), was stripped of provisions that would have allowed Internet service providers to post notices that prohibit spam on their networks and then sue those who violate the policy, according to the Coalition Against Unsolicited Commercial Email. The U.S. Internet Industry Association is also unhappy with the measure as it currently stands. The bill now goes to the House Judiciary Committee.

Service Screens Digital Certificates

Entrust.net Inc., a Web services subsidiary of Plano, Texas-based Entrust Technologies Inc., last week announced a code-signing certificate service as part of its digital certificate offerings. The service will provide browsers and other applications with the ability to reject certificates that are deemed untrustworthy or have been revoked, according to the company.

Lotus Server Delayed

Lotus Development Corp. said last week that it will delay the final release of its Discovery Server one month to improve some of its profiling abilities. An ongoing beta program will continue until the release of Discovery Server Gold Code on April 30, the company said.

Wall Street Releases Draft XML Standard

Brokerage group invites public comment

BY MARIA TROMBLY

THE RIXML.ORG LTD. standards committee, a consortium of brokerage firms that's committed to creating a standard computer language for presenting investment and financial research, last week released a draft version of Research Information Exchange Markup Language (RIXML) 1.0 for public comment.

The need for a standard approach to investment reports is critical on Wall Street because brokerages produce some 2,000 notes and reports daily, said sell-side co-chairman Christopher Betz, vice president for the institutional equity division at New York-based Morgan Stanley Dean Witter & Co.

"One new piece of content comes out of Wall Street every six seconds," Betz said. "If you're a portfolio manager or analyst trying to make investment decisions, you have piles of content you have to go through."

That's a big problem, not only for buy-side firms but also for sell-side firms, which generate the bulk of these reports, said Ariana Moore, an analyst at Cambridge, Mass.-based Celent Communications LLC.

Comprehensive Information

The new voluntary, open standard is designed to let the authors of these reports tag the content with four major types of information, Betz said. This includes source information such as publisher, analyst and research team; content information that describes whether the content is a Web address, an HTML file or an Adobe Acrobat file; legal material such as disclosures, disclaimers, trademarks and copyrights; and context information that describes what the report is about — a country, an industry or a specific sector such as semiconductors.

The current standard doesn't allow for much tagging of the content itself, Betz said, but that will be possible in later versions.

Another future priority is to open up the standard to other types of asset classes, according to buy-side co-chairwoman Ellen Callahan, director of equity market data at Boston-based Fidelity Investments. These classes include credit research, debt instruments, commodities, foreign exchange and derivatives reports, she said.

Callahan said the RIXML standards committee plans to begin working on these new features with Version 2.0 after the initial release is introduced early next month.

At present, there are already some global capabilities built into the standard, according to buy-side co-chairman Chuck Pickelhaupt, director of internal Web portal development at Fidelity.

For instance, "you can describe the content in any language you choose, and the underlying document can be in multiple languages," he said.

> One new piece of content comes out of Wall Street every six seconds.
>
> CHRISTOPHER BETZ, MORGAN STANLEY DEAN WITTER

In later versions, the standard may be extended to handle most currencies and other global issues, Callahan added.

The 30-day comment period for RIXML 1.0 ends April 25.

Iridium Refocuses on B2B

Satellite net targets industrial users

BY TODD R. WEISS

After a failed attempt to attract consumers when it launched in 1998, a repositioned Iridium Satellite LLC last week went live with a worldwide telecommunications network for industrial users in remote locations.

Voice communications are now available to users through the Arnold, Md.-based company's 66-satellite network, and data services will be available by June, Iridium announced last week.

Just three months ago, the original Iridium LLC in Reston, Va., was mired in bankruptcy proceedings and was about to undergo the decommissioning of its satellite network, which was built by Schaumburg, Ill.-based Motorola Inc. and others. It was purchased by a consortium of buyers that includes Dan Colussy, an aviation industry veteran; Syndicated Communications Inc. in Silver Spring, Md.; and other private investors whose names haven't been disclosed. The consortium paid $25 million for the dormant satellite system, which cost $5 billion when it was built in 1998.

The first major user signed on in December, when the U.S. Department of Defense agreed to a two-year, $72 million contract to obtain secure wireless communications for about 20,000 government employees.

Iridium has repositioned itself to provide remote telecommunications for industrial users, including oil drilling, construction, mining and maritime businesses, where normal telecommunications links are often impossible.

"Through a focused approach to fully understanding the needs of our customers, Iridium is positioned strongly for commercial success," said Colussy, the firm's chairman and CEO, in a statement.

Iridium has signed agreements with 13 service providers around the globe to sell its services and provide support. The service providers will sell data-ready Motorola handsets for use with the system. Prices for the phones begin at less than $1,000, and airtime rates are less than $1.50 per minute, with no additional long-distance, roaming or zoning charges.

Former Iridium customers can upgrade their old phones for use with the new system. The company plans to launch data services, including dial-up access and direct Internet connectivity, in June.

Tim Scannell, an analyst at Mobile Insights Inc. in Mountain View, Calif., said the reborn Iridium may have found its niche. "It's a fire sale," he said. "They got a great buy by getting a $5 billion project for $25 million, and they don't have any debt going into it."

A key for the new venture is that it isn't targeting consumer users, who rejected the original Iridum service because of its cost and bulky first-generation phones. The consumer market was an original sales goal that was "doomed to fail," Scannell said.

That has changed under the new company.

"I think it has a successful shot at doing something," Scannell said. "But what might work against it is the [slowing] economy" as companies look for places to cut spending.

Iridium hired The Boeing Co. in Seattle for an undisclosed fee to operate and manage the 66-satellite network and its seven spare units circling the globe.

Back to Work

Iridium's satellite network, which is going back into use:

- **Was built in 1998** for $5 billion by Motorola and others
- **Consists of 66 orbiting** satellites and seven spares
- **Was bought last year** out of bankruptcy for $25 million

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ICANN Warns Against Preregistering Domain Names

Pending arrival of seven top-level domains has users, registrars jumping the gun

BY TODD R. WEISS

With seven new top-level Internet domains due to become available later this year, some domain name registrars are getting an early start by offering companies the opportunity to preregister names. But that practice has risks for users, according to the organization that oversees the domain name system.

Brett LaGrande, a spokesman for the Internet Corporation for Assigned Names and Numbers (ICANN) in Marina del Rey, Calif., said companies can't be guaranteed the use of domain names that they preregister because not all the details have been finalized for the planned addition of the new domains chosen last fall by the organization's board.

"ICANN doesn't recommend doing it, and neither does the Federal Trade Commission," LaGrande said. He added that the new top-level domains (TLD), which include .biz, .aero, .info and .pro, probably won't be finalized until the fall.

For now, ICANN's official position is that "no one has been authorized to 'preregister' domain names in the new TLDs," according to a statement on its Web site. "Persons who attempt to 'preregister' such domain names do so at their own risk and with no assurance that they will receive the preregistered names once the TLDs become operational," ICANN said.

But that hasn't stopped companies such as OnlineNIC Inc., a Fremont, Calif.-based domain name registrar that's accredited by ICANN, from offering advance registrations for the new TLDs. OnlineNIC, which was originally headquartered in China, announced last week that it's making preregistrations available under four of the seven domains: .biz, .pro., .info and .name.

Despite its warning to users, ICANN "has not told us that we cannot preregister," said Marvin McCarthy, OnlineNIC's marketing director. "Otherwise, we wouldn't do it." Other registrars are making similar offers "and we want to be competitive," he added.

Registrars that are accepting preregistrations for new TLDs include Register.com Inc. in New York, Catalog.com Inc. in Plano, Texas, and DomainZoo.com Inc. in Tucson, Ariz.

On its Web site, OnlineNIC does advise prospective customers that there is no assurance of getting rights to a specific domain name through the preregistration process. "Your TLD request is not exclusive ... nor is there any guarantee that you will be able to register the domain name that you requested," the advisory states.

Multiple requests for a domain name may be submitted to different registrars operating similar preregistration programs, OnlineNIC said. The company said it will return the registration fees charged to users if their domain name requests can't be fulfilled.

Impact of Bush IT Advisory Panel Remains Unclear

BY PATRICK THIBODEAU
WASHINGTON

Technology industry officials said they hope President Bush's appointment of Silicon Valley venture capitalist Floyd Kvamme to co-chair an advisory committee will help keep IT issues at the top of the administration's agenda. But it's still unclear just how much influence Kvamme and his panel will have on government policies.

Bush announced last week that Kvamme will be co-chairman of the President's Committee of Advisers on Science and Technology.

Harris Miller, president of the Information Technology Association of America, a trade group in Alexandria, Va., said he believes the appointment will offer the IT industry "another critical avenue into the president and his high-tech advisers."

But Dave McClure, president of the Washington-based U.S. Internet Industry Association, said he doesn't expect Kvamme's committee to play a significant role in formulating technology-related policies.

"I can't see it being a major player because the action is not at the White House," McClure said. "The action is in Congress."

The committee's other co-chairman will be Bush's science adviser, a post that hasn't yet been filled. In making Kvamme's appointment public last week, Bush steered clear of controversial issues like data privacy and Internet taxation.

Kvamme, a partner in the venture capital firm Kleiner Perkins Caufield & Byers in Menlo Park, Calif., is "a risk taker [who] understands risk and reward," Bush said during a meeting with high-tech officials at the White House. "But more importantly, he knows the [IT] players, the people who can bring good, sound advice to this administration."

THE ASSOCIATED PRESS

FLOYD KVAMME is a risk-taker, says President Bush.

Continued from page 1

Privacy

teeing privacy protection for personal data exported from Europe is unworkable. Instead, in a letter received by the European Commission last week, the Bush administration said it wants the commission to recognize existing U.S. privacy laws as suitable for European residents.

So far, the two sides appear to be at an impasse.

The Bush administration's letter said the contracts would "impose unduly burdensome requirements that are incompatible with real-world operations."

But an EC official dismissed the U.S.'s position. "They expressed their concerns, but in our view, these concerns are unfounded," said the Brussels-based official, who requested anonymity.

As proposed by European authorities, the privacy contracts "are not something to be negotiated," said David Aaron, a former Commerce Department official. "They are kind of 'take it or leave it.' "

"So, in effect, [the Europeans] are putting a squeeze on the financial services industry," said Aaron, who is now an attorney at Dorsey & Whitney LLP in Washington. "I would object to that if I were the administration, and I'm glad that they have."

The U.S. and the European Union last year negotiated a "safe harbor" agreement (which Aaron was involved in crafting) that allows U.S. companies to export data from Europe, provided they agree to voluntarily follow a set of privacy rules, such as allowing customers access to their data.

But the agreement didn't apply to financial services companies because such firms, unlike those in other industries, already face privacy regulation under existing law. Instead, the U.S. government wants European officials to recognize privacy protections included in the 1999 Gramm-Leach-Bliley Act, the 1970 Fair Credit Reporting Act and other existing U.S. laws.

Kirk Herath, chief privacy and public policy officer at Nationwide Financial Services Inc. in Columbus, Ohio, which has life insurance customers and a car insurance subsidiary in Europe, agreed with the administration's position.

"We believe that we have adequate regulations, and layering another set of protocols ... would be onerous to the company and very costly, and I'm not sure it would get you anything more," he said.

Jonathan Winer, an attorney at Alston & Bird LLP in Washington, who is advising financial services firms on European privacy issues, called the model contracts "ludicrous." For instance, he said, if a U.S. company were importing data collected by a company in Europe, it could also be held liable if that business inadvertently or otherwise released data it wasn't supposed to. "It's not a reasonable proposition," he said.

But the situation remains murky for many companies in the financial services business.

"There's no easy shortcut answer for the U.S. and the financial services industry," said Bill Bradway, an analyst at Meridien Research Inc., a financial services consulting firm in Newton, Mass.

Financial institutions may have to implement different privacy standards for European data, Bradway said, although he added that doing so shouldn't cripple them. "They will solve the problem," he said.

Paul Meller and Juan Carlos Perez of the IDG News Service contributed to this report.

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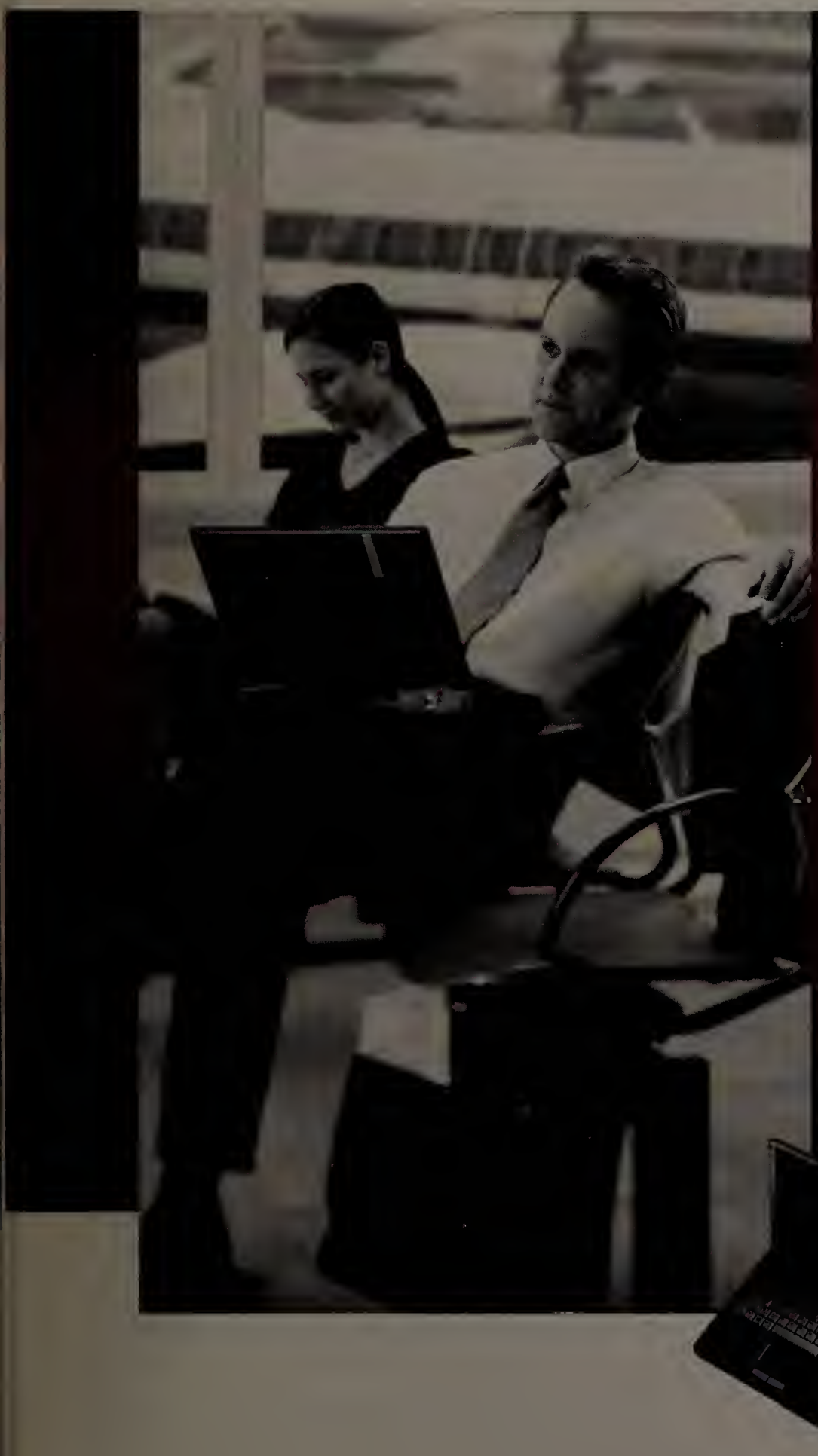

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BRIEFS

Pfizer, Microsoft Team

Drug manufacturer Pfizer Inc., IBM and Microsoft Corp. are forming a joint venture aimed at developing software and services to cut the amount of administrative paperwork in doctors' offices, the companies said last week. The as-yet-unnamed company will focus on reducing costly administrative work for physicians, such as insurance claims, the companies said in a statement. It will market its products to doctors in small group practices, which represent 70% of the office-based doctors in the U.S. The firms didn't say how much capital each would invest in the deal.

Buyers Spent $3.4B Online in February

Despite the current economic slowdown, consumer online spending increased substantially in February from January as well as from the same period a year earlier, according to a study by Forrester Research Inc. in Cambridge, Mass. The study, released last week, found that consumers spent nearly $3.4 billion in February compared with $3 billion in January. That was a sharp gain from the $2.4 billion spent online in February 2000.

Short Takes

PC vendor GATEWAY INC. has closed 27, or about 8%, of its Gateway Country stores in the U.S. in an effort to cut costs. . . . INTERNET INITIATIVE JAPAN INC., CISCO SYSTEMS INC. and ORACLE CORP. JAPAN announced plans to develop a robust multimedia content delivery platform in Japan. Trials of the new service, CDN Japan, will begin this month and are expected to last about a year before a commercial launch. . . . There were 1,501 mass layoffs (50 or more employees) nationwide in February, according to data released last week by the U.S. DEPARTMENT OF LABOR's Bureau of Labor Statistics. The total number of individual layoffs for the month was 172,908. . . . IBM last week strongly denied European media reports that it plans to absorb the corporate identity and staff of LOTUS DEVELOPMENT CORP., saying that it's still studying what to do with its groupware subsidiary.

IBM Includes Sequent Tech in 64-bit Intel Box

Will support next Datacenter release

BY JAIKUMAR VIJAYAN

IBM'S LAUNCH of a 64-processor Intel Corp. server last week should give users a new option for hosting enterprise-class Windows 2000 Datacenter applications, according to the firm.

But users will have to wait at least until the next edition of Windows 2000 Datacenter becomes available, which could be as long as a year, before they will be able to take advantage of the new technology, analysts cautioned. They also noted that the market for similar servers is already crowded.

IBM's new xSeries 430 server is its most scalable Intel server and is based on a multiprocessor technology called Non-Uniform Memory Access (NUMA), which it acquired from its purchase of Sequent Computer Systems Inc. two years ago.

The system, which is supposed to start shipping May 1, will support the next edition of Windows Datacenter when it becomes available, as well as Sequent's proprietary Ptx operating system and Linux via the Linux Application Environment, according to IBM.

Pricing starts at approximately $160,000 for an eight-processor system with 4GB of memory and 100GB of disk storage, according to IBM.

The system should give users a scalable platform for running enterprise applications, said Tom Manter, an analyst at Aberdeen Group Inc. in Cambridge, Mass.

But "enterprise customers will have to wait at least a year before they can run Datacenter applications," said Manter.

That's because the current version of Datacenter isn't equipped to take full advantage of NUMA technology, said Rich Partridge, an analyst at D.H. Brown Associates Inc. in Port Chester, N.Y.

As a result, the new servers are most likely to be of immediate interest to users of Sequent's Ptx operating system, he said.

IBM will also have a tough time differentiating its product in a market where Unisys Corp. in Blue Bell, Pa., and several large partners such as Compaq Computer Corp. have already been shipping a similar server for some time, Manter said. Unisys' system is based on a technology called cellular multiprocessing, which lets users run Datacenter applications in a mainframelike environment.

Like the Unisys servers, IBM's xSeries 430 comes with a workload management capability that allows users to simultaneously run multiple applications on the same system.

IBM's new boxes feature a modular design under which users can expand their systems using a building-block approach. Each block is composed of four 900-MHz Intel Pentium III Xeon processors, memory and I/O that are tied to one another via a high-speed communications network. ◗

AT A GLANCE

XSeries 430

- Supports as many as 64 900-MHz Intel Pentium III Xeon processors
- Up to 64GB of memory
- Up to 582TB of common storage
- Partitioned I/O
- Clustering to 16 nodes

Microsoft Pitches XP to Corporate Users

BY CAROL SLIWA
ANAHEIM, CALIF.

With last week's Beta 2 release of its new Windows XP operating system, Microsoft Corp. started to promote the marketing message for corporate users who may be wondering what's in it for them.

Pegged as a "revolution" in the consumer PC space by Microsoft Senior Vice President Brian Valentine at last week's Windows Hardware Engineering Conference (WinHEC), the new client operating system, due in the second half of the year, has carried a murky message for corporate users, many of whom are still planning or working to finish their Windows 2000 rollouts.

Last week, Microsoft began to push Windows XP's improvements for application and device compatibility, reliability, supportability, mobility and wireless access.

"The entire message around XP to date has been the consumer. The benefits to corporations have been lost," said Rob Enderle, an analyst at Cambridge, Mass.-based Giga Information Group Inc. "And the sad thing is, the corporate market is the bigger of the two."

Last week, Microsoft's Windows product team addressed the corporate audience. Group product manager Shawn Sanford said companies deploying Windows 2000 will want to "keep going," but those that haven't started should consider Windows XP for the following reasons:

- To take advantage of the Compatibility Mode, which "fools" an application designed for an earlier Windows operating system to run on Windows XP. Also, the new operating system won't block the installation of Dynamic Link Libraries (DLL), as Windows 2000 does, but instead will let them run alongside its own DLLs.
- To gain the benefits of more reliable software that's easier to support, particularly for remote users. IT staffers will be able to see and control the screens of mobile users they're helping.
- To further enable user mobility and wireless support. Employees will be able to access their primary office desktop from the road. Another new feature, called zero configuration, allows wireless users to gain automatic access to other wireless networks they're permitted to use.

Sanford said some companies in the midst of a Windows 2000 rollout might consider deploying Windows XP — which is built on the same code base — to the rest of their users, if they're at a good breaking point in their migrations. If not, Windows 2000 will give them "90% of the business benefits that XP provides," he estimated.

"If you look at companies currently running Windows 2000, [Windows XP] is a minor release for those guys," Sanford said. But for any companies that haven't started the migration or deployment, "it's a bigger deal," he noted.

In other news at WinHEC, Microsoft announced that the Windows XP Beta 2 includes the first public beta of Microsoft Internet Explorer 6 technologies. Microsoft also unveiled a 64-bit edition of Windows XP aimed at workstation users who deal with complex applications.

In addition, Microsoft announced Windows XP support for the emerging IEEE 802.1x wireless standard and detailed plans to back the InfiniBand architecture in its upcoming Whistler server operating system.

The Portland, Ore.-based InfiniBand Trade Association — which includes Compaq Computer Corp., Dell Computer Corp., Hewlett-Packard Co., IBM, Intel Corp. and Sun Microsystems Inc. — developed the architecture and specification to improve data flow between processors and intelligent I/O devices. ◗

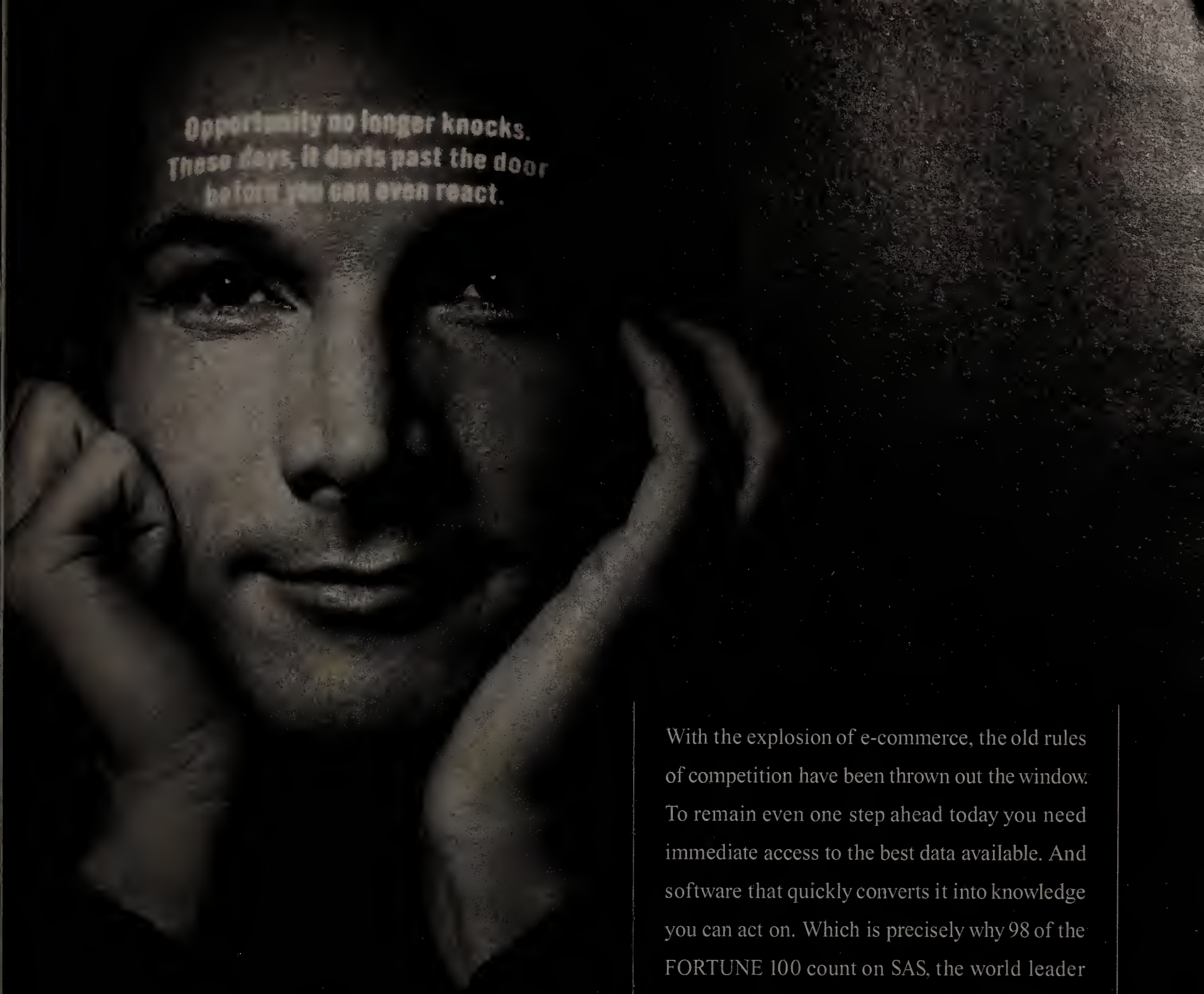
Windows XP Timetable

Microsoft's upcoming Windows XP operating system will feature Home, Professional and 64-bit editions.

Beta 2: Released last week

Release Candidate 1: Due in early June

Release to manufacturing: Due in third quarter



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Human Error May Be No. 1 Threat to Online Security

VeriSign snafu shows that procedures and processes are key safeguards

BY JAIKUMAR VIJAYAN

WHEN VeriSign Inc. revealed late last month that it had issued two digital certificates to an individual fraudulently claiming to be a Microsoft Corp. employee, the incident put users on notice about their own preventive and reactive processes for handling security lapses due to human error.

The incident also highlights some of the broader challenges associated with reliably establishing identities in public-key infrastructures, users and analysts said.

"The whole thing proves that online security isn't about the technology," said Laura Rime, a vice president at Identrus LLC in New York, which was established by eight leading banks to develop standards for electronic identity verification for e-commerce.

"It is more about the operating procedures and processes" rather than technology, that is crucial in preventing incidents such as these, Rime said.

VeriSign mistakenly issued two code-signing digital certificates to an unknown person in late January. The certificates could be used to make users run dangerous programs by fooling them into believing they were using bona fide Microsoft products. Microsoft, which characterized the lapse as a "grave threat" for all Windows users, last week released a patch that should take care of the problem, according to the company.

VeriSign didn't elaborate on how the lapse occurred, apart from attributing it to human error.

Digital certificates are used to ensure the origin and authenticity of Internet-based content. VeriSign is a certificate authority that generates and sells such certificates after first verifying the identity of the individual or company making the request.

"The process was not fail-safe," said Gerard Brady, a vice president at security vendor Guardent Inc., in Waltham, Mass. Typically, before such certificates are issued, the certificate authority needs to take steps to establish and validate identity, such verifying an applicant's employment status, title and authority to request a certificate on behalf of a company. The process can lead to human error, Brady said.

For instance, when it comes to digital certificates, sometimes there are no clear guidelines on which person within a company should be responsible to vouch for an employee's identity, Brady said.

Continued from page 1

Recruiters

For instance, Pflueger contacted the outplacement agency for a big networking vendor, but it said it doesn't "give information about client companies," she said. "I thought that was the point of an [outplacement] firm."

But in other cases, Pflueger has struck gold. Two weeks ago, she attended a career fair for employers looking to hire former employees of Schaumburg, Ill.-based Motorola. She said she developed a couple of solid leads at that event.

Another way to find laid-off IT workers is to contact area recruiters, said Mark Marheineke, vice president of operations at contract placement firm CDI Corp. in Philadelphia. And once you have established relationships with individual IT workers, hiring managers can tap them for referrals, says Marheineke.

Katherine Manetas, a consultant at New York-based human resources consultancy William M. Mercer Inc., said that amid the corporate bloodletting, many laid-off IT workers can be found networking at major trade shows, such as this month's Comdex Chicago.

Additionally, "pink-slip parties" have become popular venues for recruiters and IT workers to mingle. Last week, about 600 recruiters and former IT workers from New York's Silicon Alley crowded inside Hush, a Manhattan bar.

Derek Brightman, vice president of technical services at Infinity Consulting Group in New York, said he has found at least 50 "good candidates" for networking and programming jobs since he started attending such gatherings in October.

Some were less enthusiastic. Brook Streit, recruiter at Objective Solutions International in New York, said he was disappointed there weren't as many people with Java and C++ experience as he had expected.

Vulture Recruiting

How to hire laid-off workers:

- Contact human resources department at affected company
- Contact outplacement agencies
- Attend career fairs and trade shows in region
- Attend "pink-slip parties"

MORE THIS ISSUE
For more on IT hiring, **see page 44.**

Continued from page 1

Security

chairman of the Senate's Republican-led High-Tech Task Force and the Special Committee on Y2k.

"It made a whole lot of companies far more interested in solving the Y2k problem than they were before," he said, speaking at a recent security policy forum.

A spokesman for Bennett said the senator doesn't plan to introduce legislation that would require new regulations but hopes to get the SEC to take action on its own. However, an SEC spokesman said that the commission isn't in a position to comment on Bennett's remarks.

Scott Wright, director of information security services at Reston, Va.-based The Netplex Group Inc., said such a move would substantially "raise the bar" on security. According to Wright, the only question is, "What size stick does the SEC hold if companies don't meet the requirements?"

Risk Challenge

Bennett's comments come as more companies begin to look at Internet security as a risk management challenge. Whereas companies once thought of security as keeping unauthorized people out of their networks and securing the privacy of their customer's information, today it's about reducing liability, say experts.

SYSTEM PROTECTION

"The issue is not privacy. We don't want privacy on the Internet. We want security," said Bennett. "It comes down to 'I'll show you my security protections if you'll show me yours.' "

Craig Goldberg, CEO of Internet Trading Technologies Inc., a New York-based technology subsidiary of stock trade regulator LaBranche & Co., said his company learned about risk management the hard way.

Last March, two former employees launched a subtle but damaging series of denial-of-service attacks in an attempt to blackmail the company into providing them with stock options and other benefits.

The FBI eventually arrested the employees, but the attack caused costly interruptions that prevented Goldberg's customers from making online stock trades.

"We took what we thought were reasonable precautions," said Goldberg. However, "it is difficult to stop a determined, highly skilled insider. I learned that security is both about risk management and hiring honest people," he added, advising companies to "do whatever is reasonable" to protect their systems.

Capitalization

Jim McNulty, president and CEO of Chicago Mercantile Exchange Inc., said he looks at the issue of security from the perspective of shareholder value and confidence.

"If you look at it from the point of view of what happens to a corporation that is attacked, what happens to their market capitalization because there's a change in perception about the company's growth prospects ... what you can actually see are much larger effects," said McNulty.

Michael Cangemi, president and chief operating officer at leather goods retailer Etienne Aigner Inc. in Edison N.J. , said he approaches risk from the standpoint of the company's sales and profitability.

"I'm not sure the general population realizes just how interconnected all of the ordering processing systems are. My concerns are right in the core of our business," said Cangemi.

However, there's a big knowledge gap in corporate America when it comes to risk, which stems from the fact that corporate boards are primarily staffed by CEOs and not CIOs, he said.

"We're just getting to the point where there are [chief financial officers] on the board," said Cangemi. "There are no CIOs yet."

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Insurance Carriers Move to Crumple Paper Processes

St. Paul, AIG and The Hartford among companies moving to the Internet

BY MARIA TROMBLY

SEVERAL INSURANCE industry powerhouses are stepping up efforts to cut paper from their operations with a range of Web-based projects that are also designed to cut costs.

The St. Paul Cos. in St. Paul, Minn., and American International Group Inc. (AIG) in New York have both gone live with a Web-based XML application process developed by one of their insurance brokers, InsureHiTech.com in Princeton, N.J. InsureHiTech was inspired to automate the previous time-consuming paper-based process after catching the technology bug from its high-tech business customers, said Rick Maloy, the company's president and CEO.

Customers, their insurance agents or both fill out an electronic form that InsureHiTech's back-end system sends as an XML e-mail to the carrier's server, according to Maloy.

"No humans have to touch it," Maloy said. "It drops directly into their rating and policy management system, so there's no rekeying."

Easy Quotes

The technology will make quote preparation and delivery more efficient and increase customer satisfaction, said Christopher Sparro, president of the middle market and commercial units at National Union Fire Insurance Co. in Pittsburgh, an AIG member company. However, he was unable to provide any specifics about expected cost or time savings because the process is so new.

In addition to the XML-based system that InsureHiTech has pioneered, AIG has implemented a Web-based interface for agents.

"It allows us to generate quote letters, to qualify our accounts, quote and bind policies, all online," Sparro said.

St. Paul is using the technology for property, general liability, errors and omissions, biotechnology product liability and clinical trial coverage policies.

It took only a couple of months for St. Paul Cos. to tie into the InsureHiTech system, said Jon Farber, underwriting director at St. Paul Technology, a division of St. Paul Cos. But despite the progress InsureHiTech is making, the average broker won't be fully automated for at least five more years, said Eduard Cecere, an analyst at TowerGroup in Needham, Mass.

FARBER: St. Paul tied into its new system quickly.

"There's the disparate nature of sophistication in technology at these agents and brokers," he said. "You've got a wide spectrum of actual configuration. You've got agents just getting online and some still using ledger books."

The carriers also have to be ready to accept electronic transactions, and not all of them are, Cecere said.

Taking a different approach to eliminating the paper trail, one Web exchange is serving as a claims processing hub for insurance carriers.

Dennis Maroney, chief technology officer at ClaimPlace Inc. in Wilmington, Mass., said insurance firms often have to deal with one another to settle claims or outsource some claims to other companies for processing. ClaimPlace provides the means for that without the vast amounts of paper traditionally associated with claims processing, according to Maroney.

The Hartford Financial Services Group Inc. in Hartford, Conn., will beta-test the ClaimPlace offering this month, after which the company plans a full rollout.

Todd Eyler, an analyst at Cambridge, Mass.-based Forrester Research Inc., estimates that the insurance industry could save $10 billion annually and reduce processing time by a week with claims hubs that route the case files electronically. ◗

Insurance IT To-Do List

What technology are you investing in?

Claims reporting systems: **54%**

Communications tools: **52%**

Productivity tools: **52%**

24/7 call centers: **36%**

Online claim filing: **20%**

Online status checks: **2%**

BASE: SURVEY OF 50 AUTO INSURERS

SOURCE: FORRESTER RESEARCH INC., CAMBRIDGE, MASS.

Report: Big Iron Still Rules Wall Street

Volume and speed require mainframes

BY MARIA TROMBLY

Big iron isn't dead yet — at least not on Wall Street.

Indeed, mainframe computers will continue to perform key processing functions, such as clearing and settling trades for major stock exchanges and back-end trade processing organizations in the securities industry, for at least another decade, according to a new report released by Newton, Mass.-based Meridien Research Inc.

For mission-critical functions such as trade processing, there's still no substitute for the speed and capacity that mainframes can deliver, said Dana Stiffler, an analyst at Meridien Research and author of the report.

In fact, because of growing stock market volumes, many firms continue to add to their mainframe MIPS.

For instance, The Depository Trust & Clearing Corp. (DTCC), which provides the primary infrastructure for the clearing and settlement of the majority of the equity, corporate debt and bond transactions in the U.S., added a few machines last year and is planning to do so again this year, according to Steve Letzler, a spokesman for the New York-based company.

At the start of last year, the DTCC had enough computing power in its IBM G6 mainframes to handle up to 25 million transactions per day. By the end of the year, the company had added enough processors to handle 40 million transactions per day.

"By the end of 2001, we'll have that up to 60 million transactions a day" to handle growing volumes, with full redundancy, so we have duplicate sets," Letzler said.

In addition to the ability to produce higher volumes, the market is demanding faster execution.

Originally, the processing was performed in batches at the end of each trading day. During the past year, the DTCC moved to a multibatch processing format and expects to have a real-time process in place by the end of the year, Letzler explained. This transition is part of the securities industry's move from a three-day to a one-day trade settlement cycle, due to be completed in 2004 [News, Sept. 25].

MAINFRAMES endure at markets like the NYSE due to heavy trading.

The same demands are also being faced by the stock exchanges.

"We're always adding more mainframes for purposes of enhancing capacity," said Steve Randich, chief technology officer at Nasdaq Stock Market Inc. in Trumbull, Conn. Nasdaq uses mainframes from Blue Bell, Pa.-based Unisys Corp. for its quotation system, which puts the prices available out to the market. The stock exchange also uses a Compaq Computer Corp. Tandem S7400 — the biggest Tandem machine available — for its order negotiation, execution and trade reporting systems, said Randich.

In fact, Nasdaq is reaching the limits of what these machines can handle, he said. "We're limited in our ability to continue to vertically expand our capacity," he said. "Therein lies the need to develop distributed architectures so we can more easily scale across multiple machines." ◗

Office Depot Deploys Wireless Tracking, Delivery System

BY BOB BREWIN

Office Depot Inc. has started a nationwide rollout of a wireless delivery and tracking system based on rugged handheld computers operating over a packet data network. The company plans to equip all 2,000 of its delivery vehicles with the system.

Dennis Andruskiewicz, senior president for distribution at Delray Beach, Fla.-based Office Depot, said the company opted for rugged personal digital assistants (PDA) based on Santa Clara, Calif.-based Palm Inc.'s Palm OS and supplied by Holtsville, N.Y.-based Symbol Technologies Inc. The logistics management software is supplied by Aether Systems Inc. in Owings Mills, Md.

Office Depot has already gone live with the system in nine locations and plans to have it operating in 20 markets by year's end.

Andruskiewicz said the Office Depot Signature Tracking and Reporting System (OD STAR) provides delivery management, from loading a truck to getting a customer's signature.

Drivers use a bar-code scanner to record each item in a shipment as it's loaded onto a truck, automatically creating a manifest that's viewable on the company's Web site once the driver inserts the PDA into the truck's wireless data terminal. Data from the PDA is then sent over a packet data network operated by Atlanta-based Cingular Wireless to the company's back-office systems.

At delivery, the driver again scans the order and has the recipient sign for it electronically. The signature is transmitted to the back-office systems to aid in electronic order reconciliation. Andruskiewicz said that because Office Depot handles about 100,000 deliveries daily, the electronic signatures will make it easier to reconcile disputed deliveries with signatures stored in a database, obviating the need to search through masses of paper.

The new system will also enable Office Depot and its customers to view the company's Web site to check truck locations, with the mobile network constantly updating the position of each truck on its route.

Jeff Kagan, an Atlanta-based wireless analyst, said the Office Depot tracking system appears to be similar to systems used by United Parcel Service Inc. in Atlanta and FedEx Corp. in Memphis. "What works for FedEx should work for other companies," Kagan said.

Analysts said OD STAR may provide Office Depot with a competitive edge against rivals such as OfficeMax Inc. in Shaker Heights, Ohio, and Corporate Express Inc. in Broomfield, Colo. An OfficeMax spokesman said the company has a policy against commenting on competitors. Corporate Express didn't respond to a request for comment by deadline.

BRIEFS

Ericsson, Nokia Tighten Belts

Faced with a slowing global economy, wireless giants LM Ericsson Telephone Co. and Nokia Corp. last week announced cutbacks, layoffs and changes in their business strategies. Ericsson unveiled a global efficiency program to help cut costs by at least $2 billion annually starting next year. The Stockholm-based company placed a freeze on recruiting and said it would lay off at least 2,100 employees in Sweden and England. Ericsson also plans to drastically reduce the number of consultants it uses and shift work to its employees.

Espoo, Finland-based Nokia said its Nokia Networks infrastructure arm will refocus its broadband systems division into two business units to improve service and reduce costs. Also planned are layoffs of 300 to 400 workers.

Fujitsu Launches Storage Software Unit

Fujitsu Ltd. in Tokyo last week said it's launching a U.S.-based company to develop and market open storage software products and compete against heavyweight vendors such as IBM and Hopkinton, Mass.-based EMC Corp. The Fujitsu Software Technology Corp. unit, which is being referred to informally as Fujitsu Softek, will operate as part of Fujitsu's Amdahl Corp. subsidiary in Sunnyvale, Calif. Fujitsu Softek will combine products from the former Amdahl Software division with new storage management software that's now in development.

Short Takes

Boston-based Internet consulting firm VIANT CORP. said it will cut 38% of its workforce, or 211 employees, and close its offices in Houston, San Francisco and Munich, Germany. . . . SCHOLASTIC CORP. in New York has backed away from plans to purchase Web technology, toys, customer lists and other inventory from defunct online retailer eToys Inc. . . . NORTEL NETWORKS CORP. in Brampton, Ontario, warned that its first-quarter earnings would likely be even worse than it forecast last month and said it would cut another 5,000 jobs.

U.S. Wireless Industry Eyes Japan's Success

Success of I-mode wireless Internet service sparks interest domestically

BY MATT HAMBLEN
LAS VEGAS

With wireless Internet usage in the U.S. falling short of analysts' projections, many industry officials are eyeing the wildly successful I-mode wireless Internet service rolled out two years ago by NTT DoCoMo Inc. in Japan.

In a speech at the recent Cellular Telecommunications & Internet Association's conference here, Takeshi Natsuno, executive director of the gateway business department at NTT DoCoMo, said I-mode now has 21 million active subscribers, each paying an average of $20 per month.

I-mode's success has been scrutinized by U.S. firms partly because Tokyo-based NTT DoCoMo recently bought 16% of Redmond, Wash.-based AT&T Wireless Services Inc.

The two companies have formed a subsidiary in the U.S. to focus on streaming media content that can be delivered wirelessly to handsets starting in 2003. That system will use much faster connections than are now available, said AT&T Wireless Chief Technology Officer Rod Nelson.

While streaming audio and video might seem important only to technophiles who play games, AT&T and NTT DoCoMo officials claim that rich sound, color graphics and even streaming video will eventually matter to workers in large U.S. businesses.

Salespeople on the road, for example, could use streaming media to offer new pitches to clients or prospective customers during important sales calls, Nelson said. And other workers could use the service to gain access to graphically rich corporate intranets.

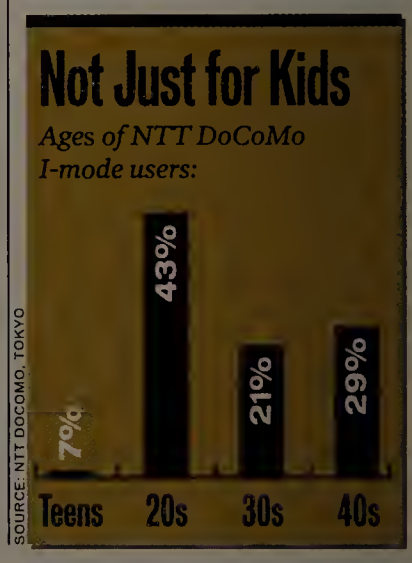
"This will add value to the corporate environment, but the service can't be priced too high for IT managers to accept," Nelson said.

Analysts pointed to I-mode features and social and environmental factors that fueled its success. In Japan, for example, wired Internet connections are harder to find, slowing the growth of that nation's Web-based home PC market while making wireless communications a more viable alternative for users. In the U.S., where wired Internet connections are more readily available, there has been less call for wireless Internet access, said analyst Andrew Seybold, publisher of the online newsletter "Wireless Outlook."

But Seybold said he believes the biggest factor in I-mode's success has been the extensive network coverage. Although there are many gaps in wireless service in the U.S., such gaps are rare in Japan and Europe, he said.

Seybold and analyst Iain Gillott, founder of iGillott Research in Austin, Texas, both noted that the cultures are very different. "I'm not sure we can bring I-mode over here," Gillott said.

What is likely to carry over from Japan is the heavy use of packet-based billing, said Alan Reiter, an analyst at Wireless Internet & Mobile Computing in Chevy Chase, Md. Under that billing model, users are charged based on the number of packets they receive over their phones, which helps lower costs. ◗



Palm Warns of Loss, Plans Workforce Cut

Handheld maker latest to feel pains of soft U.S. economy

BY CRAIG STEDMAN AND MATT HAMBLEN

Handheld computer maker Palm Inc. last week disclosed plans to cut its workforce by 13% and make other cutbacks in response to a reduced revenue outlook and an expected fiscal fourth-quarter loss.

The Santa Clara, Calif.-based company said about 250 full-time employees and contract workers will be let go. Palm, which currently has about 1,900 people on its payroll, indicated that additional layoffs are likely after the scheduled June completion of its acquisition of Extended Systems Inc. in Boise, Idaho.

YANKOWSKI: Shift in product offerings has affected the bottom line.

Palm announced the planned cutbacks when it reported financial results for its third quarter ended March 2, with revenue increasing 73% from the same period a year earlier to $470.8 million. But the company said fourth-quarter revenue is expected to total only $300 million to $315 million, down from $350 million a year earlier.

Like other technology vendors, Palm is feeling the effects of the softening U.S. economy. That has resulted in a reduction in orders, said Palm CEO Carl Yankowski. He added that the company is also being affected by a product transition to its new m500 and m509 devices, which aren't due for volume shipment until the last month of the fourth quarter.

The revenue crunch is expected to lead to a net loss of about $36 million in the fourth quarter ending in early June. That follows a $1.9 million third-quarter net loss, although Palm said that was due largely to costs stemming from acquisitions. Without those costs, the company would have had a net income of $9.3 million.

Palm had said in its fiscal second-quarter filing to the Securities and Exchange Commission that it planned "to continue to hire a significant number of employees this year." But because of the reduced business outlook, the company last week said it's now "adjusting its business model and focusing on balance-sheet management."

Palm said it's trying to reduce expenses by 10% to 15% from their expected fourth-quarter levels. In addition to the layoffs, the company is postponing construction of a planned new headquarters in San Jose that was expected to cost $460 million over a seven-year period. Palm also said that it's re-evaluating its overall real estate plans.

Alan Reiter, an analyst at Wireless Internet and Mobile Computing in Chevy Chase, Md., said Palm's planned layoffs fit the pattern of workforce cuts announced recently by other wireless communications vendors (see news briefs, at left).

"A lot of these companies announcing layoffs were counting not only on the growth of the economy, but [also on] the growth of enhanced services, like wireless computing with [the] Wireless Application Protocol," Reiter said. ◗

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Blood pressure is normal.
Ridiculous requests leave you unfazed.
You still work in IT.
(No, really, you do.)

Microsoft

The task is to make six different
systems work like one.
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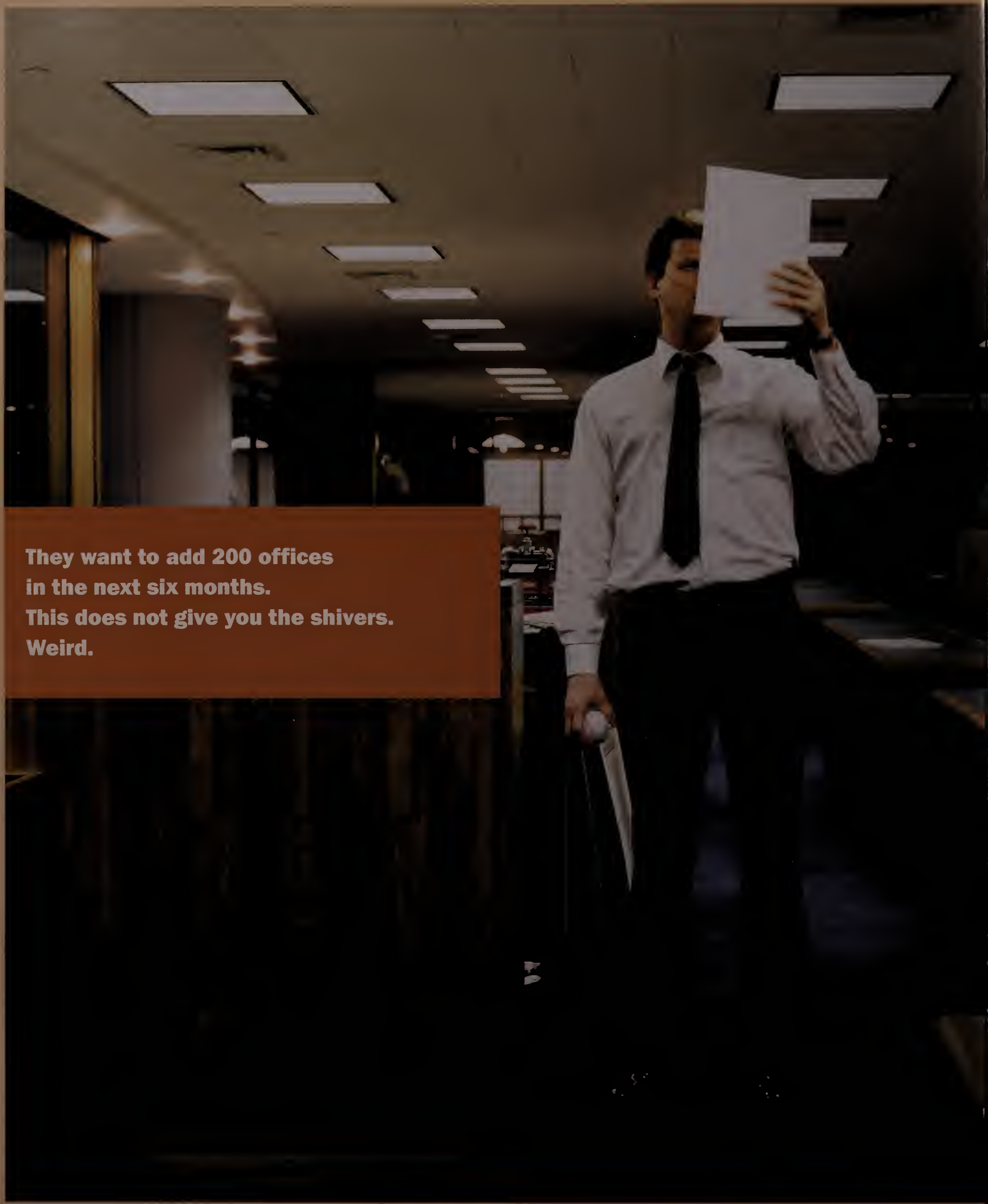

They want to add 200 offices
in the next six months.
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**Represents all Ticketmaster Web properties*

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MARKET FACT

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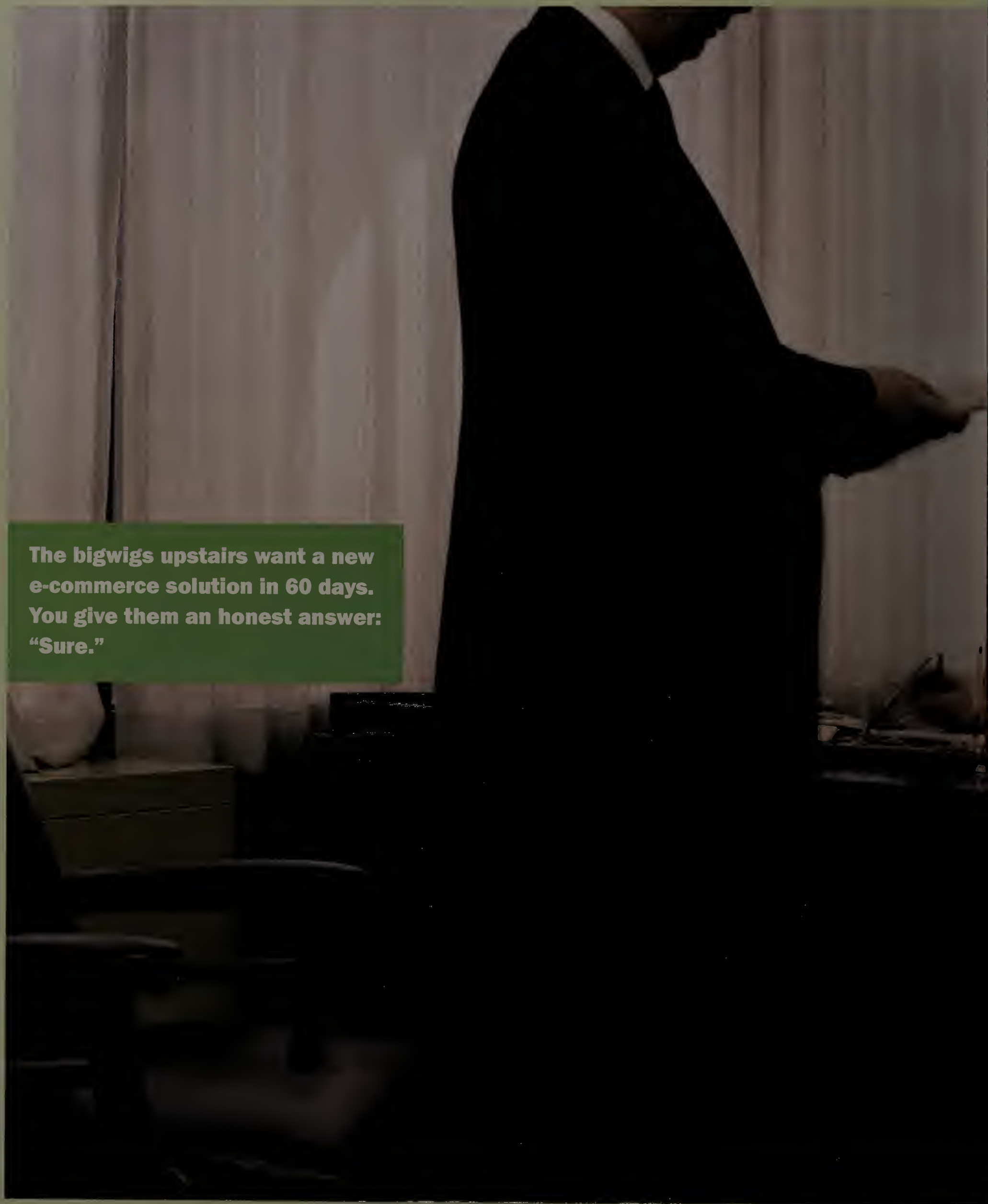

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COMPANY	TIME TO MARKET FOR WEB SITE
[illegible]	[illegible] DAYS
[illegible] COMMERCIAL [illegible]	[illegible] DAYS
[illegible]	42 DAYS
[illegible]	[illegible]

Commerce Server 2000 is all about getting e-commerce solutions up and deployed fast. It's a comprehensive solution for quickly building and deploying scalable, personalized B2B and B2C solutions. Out-of-box apps and pre-built business components let you focus on customizing your site rather than worrying about the plumbing. Intuitive administration tools simplify and centralize many tasks, helping you reduce total cost of ownership and increase your application availability.

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MARKET FACT

USATODAY.com was looking for a powerful platform for their Summer Games [illegible]. With [illegible] Enterprise Servers, USATODAY.com had a fully [illegible] site to [illegible] [illegible] was capable of handling up to [illegible] per day.

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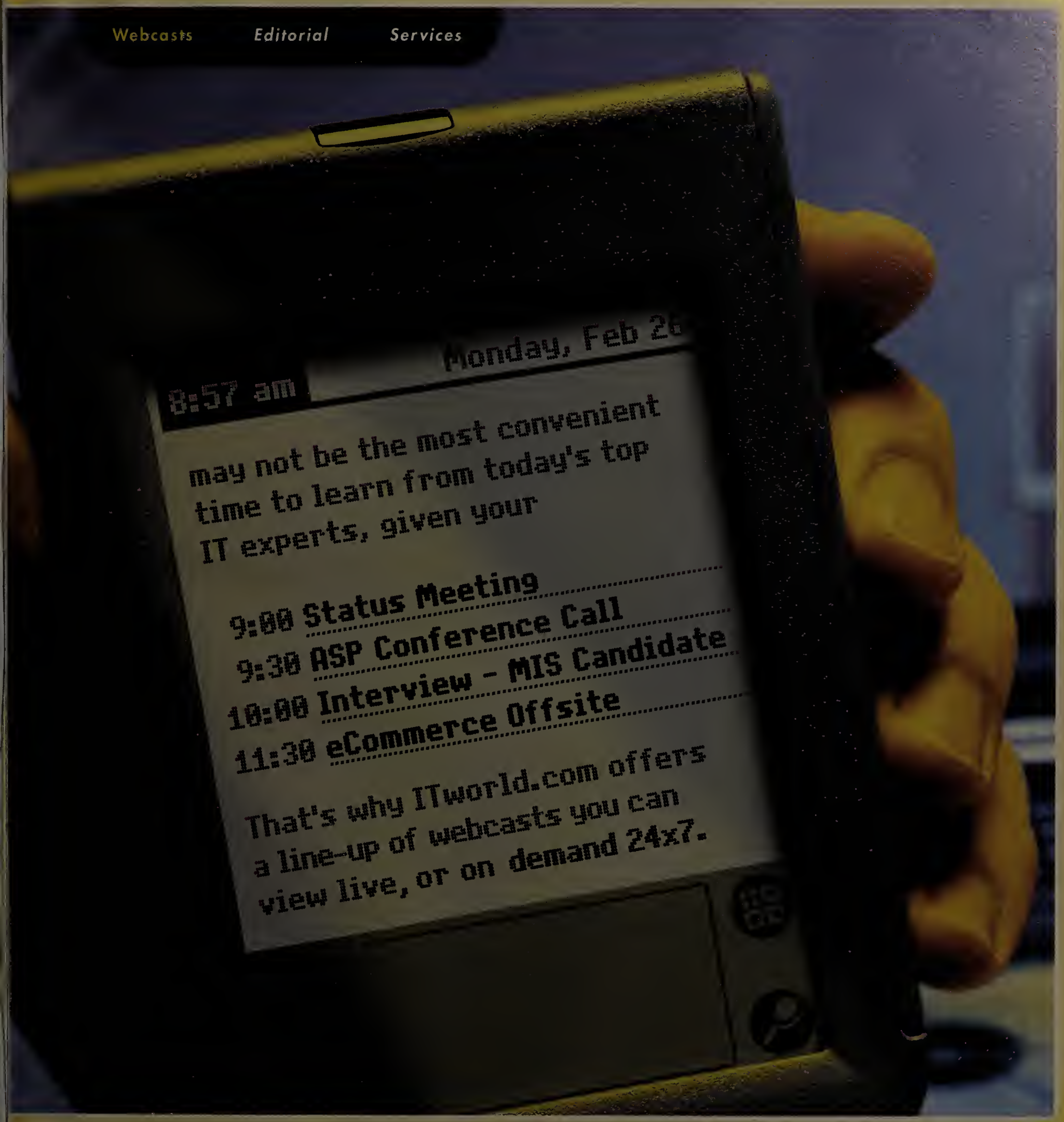

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MARK HALL

Permanent IT

PERMANENCE ISN'T THE first thing that pops into your head when you think about information technology. If anything, just the opposite comes to mind — change, flux, chaos, upheaval. Those are the traits we associate with IT, especially in these days of Internet time.

MARK HALL is *Computerworld*'s West Coast editor. You can contact him at mark_hall@computerworld.com.

It's easy to be seduced by best-of-breed or cutting edge technology when there are promises of huge returns from a quick competitive advantage. Yet, for quite a few of you, resisting the hottest new thing from Silicon Valley is part of the job. Designing and building systems that will last for a very long time is your bottom line.

I was reminded of this last week when I visited Lloyd Thorpe, regional manager of the Information Systems and Services Division at the Oregon Department of Corrections, and his technical support analyst, John Taylor.

We were standing outside the gatehouse of the formidable Two Rivers Correctional Institution, a high-tech medium-security prison perched on the basalt bluffs above the Columbia River. Thorpe said most of the IT infrastructure inside the 1-year-old concrete-and-steel facility is intended to last until 2100. As Taylor put it, "Taxpayers don't like us to go back and ask for money to do upgrades."

But it's not just taxpayers who demand that IT think long term. Customers do, too. The Boeing Co. develops systems to manage information with 90- to 100-year life spans to match the longevity of its product lines.

Christopher Kent, the company's vice president of computing and network operations, points to the 747 as an example. Design of the airliner began in 1960, production will continue until around 2020, with the last planes built seeing use for another 30 years — at least. That means Kent is responsible *today* to assure that all 747 data will be available to the planes' owners 50 years hence. His counterparts at General Electric, Pratt & Whitney, Ingersoll-Rand and other manufacturers that make equipment that stands the test of time are all doing the same thing.

Folks like Kent, Taylor and Thorpe are always looking deep into the future. That means they seldom fall victim to vendors' breathless pronouncements of the next big breakthrough, that "revolutionary" new product that will change everything, if only for a moment. They look at not only what works now, but what will likely work in the face of human error, natural disaster, technological change and time itself. Fads, trends and change for its own sake doesn't interest them. What they want is something with a future. A long one. ◗

PIMM FOX

Tech Downturn Offers 10 Things To Smile About

THE DOWNTURN in the tech economy isn't as gloomy as you might expect. Sure Oracle, Cisco, 3Com and a host of dot-coms have announced layoffs and cutbacks or have folded. But inside every gray cloud lies a silicon lining to turn even the determined pessimist into a hopeful visionary. Here's a look at some positive aspects of the current tech wreck.

Software prices get rational. Say goodbye to expensive Oracle databases and high-priced, shrink-wrapped software.

PIMM FOX is *Computerworld*'s West Coast bureau chief. Contact him at pimm_fox@computerworld.com.

The application service provider model is letting IT users pick what they want when they want it. No annoying salespeople, and you can even pay for software monthly rather than blowing a big hole in your IT budget.

Space and furniture are cheaper. There's plenty of office space on the market. "Landlords sitting on empty buildings are buying furniture and wiring spaces to attract clients," says Scott Kline, founder and owner of furniture reseller Smart Interiors Inc. in Menlo Park, Calif. "Six months ago, it was hard to find good used furniture; now I'm getting a call a week from people wanting to sell."

IT help is available. Cutbacks mean employers have a greater number of IT applicants to choose from. Kevin Oldham, a division president at Raging Mouse Inc., a technical recruiter in San Francisco, says he agrees, but adds, "it means they have to sift through more résumés to find that one great candidate."

Venture capitalists go back to basics. "You used to be able to study a business, spend a month or so doing due diligence before the tech bubble," says Alan Salzman, a founding partner of Vantage Point Venture Partners in San Bruno, Calif. "That went out the window during the last five years. Now, we're back to building businesses for the long haul."

Business is easier. A random survey of restaurants frequented by New Economy crowds reveals that you can get a table without calling a week in advance.

Fewer people at trade shows. You can collect all the stress balls, laptop bags and pens you can carry. Indeed, there appeared to be more exhibitors than attendees at the Internet World Spring 2001 conference.

Everyone's a genius. Tech execs, financial analysts, even your accountant say they saw the recession

coming. But until layoffs, missed earnings and curtailed spending hit people directly, they'll live in a dream world. Now those same experts are predicting a turnaround. Don't be fooled! Better to ask your mother.

You can live on your own. With Alan Greenspan cutting interest rates, you can get a mortgage at a lower cost without using your dot-com stock options.

No more day trading. You can get more done during the day because you're not trading DoubleClick, Cisco or CMGI.

And finally, no more "hockey sticks." We can toss those "hockey stick" financial forecast analogies. The only real hockey sticks are those used in hockey games. ◗

EDWARD J. MARKEY

Congress Must Act Soon on Privacy Rights

IT'S INCREASINGLY CLEAR that U.S. consumers are eager for policymakers to establish rules protecting online privacy. After several years of awaiting effective industry self-regulation to protect consumers, the Federal Trade Commission (FTC) last year conceded that self-regulation alone was insufficient and recommended that Congress act.

Congress must enact a privacy policy combining three key elements: technological tools, industry self-regulation and enforceable privacy rights.

Technological tools: I have long believed in technology's potential to solve some of the problems it poses. I'm particularly encouraged by the growing cadre of software engineers and entrepreneurs who have developed and begun to market technologies that permit consumers to enhance their own privacy.

U.S. REP. EDWARD J. MARKEY (D-Mass.) is the senior Democrat on the House Subcommittee on Telecommunications and the Internet.

In addition, the Platform for Privacy Preferences (P3P) holds much promise. P3P enables consumers to indicate electronically to Web site operators how they should treat personal data. At the very least, letting the computers "do the talking" would save consumers the toil of clicking on the privacy policy of each Web site they visit to view its policy. Yet P3P can only truly work if it's widely available and if the private sector honors consumers' expressed privacy preferences.

We must also recognize that privacy-enhancing tools have policy limitations. Relying solely on technology puts privacy at the trailing edge of a never-ending process of technological one-upmanship. Moreover, consumers can't be expected to fully protect themselves through technology, because not every consumer — at least in the short term — will be savvy enough to utilize such technology. That's why remedies beyond technological tools are necessary.

Industry self-regulation: Ongoing efforts of certain online companies to develop self-regulatory solutions are quite laudable, and many companies today have posted online privacy policies. But having a posted privacy policy isn't synonymous with having a good privacy policy. Indeed, many voluntary online "protections" are so riddled with loopholes that they render their postings meaningless.

For privacy notices to work, they must be conspicuous and in plain language. It serves neither consumers nor online commerce if posted notices are hard to find or difficult to understand.

The current lack of legal privacy requirements also creates an inverse system of rewards and risks for the industry. If a company posts a privacy policy and then subsequently violates it, the FTC can act under its authority to police "unfair" or "deceptive" practices.

Conversely, if a company doesn't post a policy and then engages in personal information highjacking, it's legally able to continue on its merry way. The company is shielded by the "privacy paradox": As long as it never promises to protect privacy, it can never be accused of deceiving its customers.

This situation makes no sense, and it's time to change it.

Enforceable privacy rights: Our national privacy policy must ultimately include a governmental role. Congressional action can factor in new technology and encompass what industry self-regulation offers, but it can also deal flexibly and realistically with the limitations of technology and self-regulation in fully protecting consumers.

New consumer protections must include conspicuous privacy notices; consumers' rights to exercise choice over the collection, reuse or disclosure of personal data; the right to access information collected about them; and effective enforcement of those rights. Also, these essential, government-backed protections must include more stringent protections for health and financial data.

Our current national policy embodies legal online privacy protections only for children under age 12, while everyone over the age of 13 must rely on voluntary industry efforts to protect their personal privacy. This policy is unfair and serves neither consumers nor online commerce well. Congress must act soon to safeguard privacy rights and individual freedom in the online environment. ◗

READERS' LETTERS

Burdens of Gender

HOW NICE that leaving their jobs is a viable alternative for so many women ["Stressed-out IT Women Tempted to Quit, Survey Finds," *Computerworld.com*, March 15]. Men have been living with the effects of "unreasonable stress and lack of work/life balance" for years. What percentage could reasonably consider leaving their jobs because of it?

Steve Orr
Boston

I THINK women are looking for jobs to be redesigned to fit their preferences. Personally, I establish what balance I can by getting up and leaving the office when I've decided I've met my commitment. It has, I believe, cost me movement into management. I'm doing well and doing something I like, but I do not regard it as balanced. My life is heavily oriented toward bringing home a solid paycheck.

In my mind, balance, for parents at least, comes in equitable division of labor. One party is responsible for obtaining resources (income) and one for managing house and child care. Which role they choose is up to them, but re-engineering work life isn't the answer. Individuals need to put reasonable limits on their commitment to their jobs; they cannot expect employers to do it. Employers will, after all, take all you offer and then some, regardless of your gender.

Frank Hujber
Mercerville, N.J.
fhujber@hotmail.com

A Cheap Solution?

REGARDING "Offshore Coders: Cheaper and Better" [*Computerworld ROI*, March/April]: Yeah, right. And their documentation is top-notch, too. And they can tell when there's a physical problem with the Web server by walking from India into the computer room. And they can easily talk with the customers for the new system being developed when they're 12 hours out of sync with the U.S. If the only thing involved in developing systems was writing code, your conclusion might be true. As things stand now, it's not.

Roger Erickson
Independent consultant
Nordic Systems Group Inc.
Westlake, Ohio

Leadership Defined: Start from the Beginning

I AGREE WITH David Foote that key influences contribute to the success of leaders, but not with the statement that leaders are made, not born ["Don't Kid Yourself: Leaders Are Made, Not Born," News Opinion, March 12]. The opposite is true: Leaders are born, not made. You can send a person to as many leadership schools, classes and seminars as you want, but if that person doesn't have the propensity to be a leader, he won't be one. I can get more IT work done with three people than most of my counterparts can with 12. This is due to strong leadership. My days in the Marine Corps helped, but I felt this desire to lead in my bones as early as I could talk.

Marshall E. Needler
NexLink Solutions
Carmel, Ind.

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JOHN GANTZ

There's No Foolin' In E-Commerce Transactions

YESTERDAY WAS April Fools' Day. I used to write spoof columns for the occasion, but 10 years ago I wrote one in *Infoworld* that took on a life of its own. I fictionalized that the National Security Agency had created a virus that was implanted in Iraq's air defense system and that that was the real reason we won the Gulf War. The column ended with a hearty "April Fools!"

Yet somehow, my joke got picked up by *U.S. News & World Report* in an article titled "The Secrets of the Gulf War" and was presented as real. Before it was published, I told the authors it was all a joke, but they published it anyway. My spoof became an incontrovertible fact. Somebody at the Pentagon confirmed the story.

JOHN GANTZ is a senior vice president at IDC in Framingham, Mass. Contact him at **jgantz@idc.com.**

I bring this up because in the on-the-Internet-nobody-knows-you're-a-dog era, we're going to need better tools to know when, and if, we're being spoofed in our online transactions.

Online merchants already know the price they pay for the lack of transactional security services. While credit card companies charge brick-and-mortars 1% to 3% of a transaction to handle credit authorization, verification and payment, they charge online merchants 3% to 6%. In the brick-and-mortar setting, where physical credit cards are usually present, merchants bear the costs of fraud 10% to 15% of the time. In the online world, where all transactions are "card not present," merchants have to pick up the tab about 25% of the time. This is because fraud rates are 10 times as much as when the physical cards aren't used in transactions.

In other words, security risks and attendant security costs are higher in the online world. On the other hand, moving a customer from, say, doing business via an 800 number to doing business online can cut a merchant's cost per transaction by a factor of 10 or 20.

These higher security risks and costs in the online world are driving a market for transaction security software and services. It will grow from $128 million in 1999 to more than $3 billion in 2005, according to my colleague Chris Christiansen, IDC's Internet security guru.

These services usually work by letting a merchant identify a potential customer, verify the identification through a third party and then download security "credentials" to use in the transaction. A new customer can be doing business in minutes. By creating what is, in essence, a virtual smart card, the merchant can actually process the transaction as if it were supported by a physical credit card.

Wrinkles on this include digital signatures, credit card encryption and discount payment services. The advantage over traditional IT security systems is support for one-time transactions.

IT departments will, of course, play a critical role in implementing such transactional security and working with the company's business partners. The nice thing is that for once you can point to a real return on investment for implementing a security solution: lower transaction fees and higher customer retention. You no longer have to sell protection but rather customer benefit. Security goes from risk avoidance to business enablement.

This is no April Fools' joke. I promise. ◗

BILL LABERIS

Don't Turn a Deaf Ear to the Rise of Wireless Devices

A PROFESSIONAL GENERATION ago, in the mid-1980s, the careers of many IT managers flamed out when a computing revolution sprang up around them as IT fiddled and diddled. Promising power to the people and liberation from starchy IT command and control, PCs were brought by the millions into the enterprise, creating chaos that took years for IT to bring under control.

To some extent, history is repeating itself. Millions of devices destined to be the next end-user computing platforms of choice are flooding the enterprise. They're PDAs, smart cellular phones, handheld computers and wireless-enabled laptops — the vanguard of the wireless world of the future. And as with the PC, not all IT managers are eager to embrace them.

BILL LABERIS is a consultant in Holliston, Mass., and former editor in chief of *Computerworld*. Contact him at **bill@laberis.com.**

Their reticence is well-founded. The reality of any sort of integration of wireless devices with mainstream corporate information systems falls far short of the hype of wireless computing that's often portrayed on glossy magazine covers. In fact, integrating wireless devices — new sales of which will exceed 125 million this year in North America — is an order of magnitude more complex than the task of integrating PCs a generation ago.

Consider the challenge of getting data to the devices. Mobile platforms, by their nature, have small screens. Getting Web content onto those screens requires multiple translations into special languages that form the alphabet soup of the wireless world today. They include Wireless Markup Language, Handheld Data Markup Language and Voice Extensible Markup Language for wireless phones.

Also, there's a profound lack of interoperability among the different network providers, who use different technologies to move data. And users expecting to see some logical extension of their desktops in terms of bandwidth are shocked to find that the bandwidth norm today, and for the near future, is a speed of only 14.4K bit/sec.

Today, as with the PC, different users and different departments within the same companies often have contrasting ideas of how wireless devices will be used. Salespeople may want robust customer relationship management applications installed and maintained, whereas service and support may want an entirely different set of applications.

IT must face almost overwhelming data security challenges in the wireless world that are far less developed and mature than the data security environment that can be provided to nonwireless users. And, as *Computerworld* has noted [Feb. 5, Page One], efforts of IT managers who are trying to corral the wireless stampede are being hindered by an acute shortage of programmers and architects who can build, deploy and maintain wireless applications that integrate with central office systems.

With all these new headaches, you may ask, "Why bother?" Early, aggressive wireless adopters have found that wireless device deployment can generate revenue. In the simplest terms, it can be a distinct competitive advantage to have the mobile minions in close touch with vital data, wherever they may be. In a few years, it won't be an advantage but a requirement.

You must take control. If for no other reason, you must be able to convince users and their managers that the wireless world today really is a nascent one in which standards are far from complete or that, in other cases, there are multiple competing standards emerging, which is to say no standards at all. Broadly available and affordable wireless data transfer rates, say, in the megabit-per-second ranges, are at least two years off.

If you "just say no," they'll assume you mean "I won't." They'll then say, "OK, fine; then we will." Then you'll be facing a bigger mess down the road when users and departments spinning in their own wireless orbits create a wireless Tower of Babel.

Instead of resisting end users, become their wireless mentor and guru to help promote a reasoned assimilation of wireless devices into the mainstream environment. Your future, and your company's, may well be at stake. ◗

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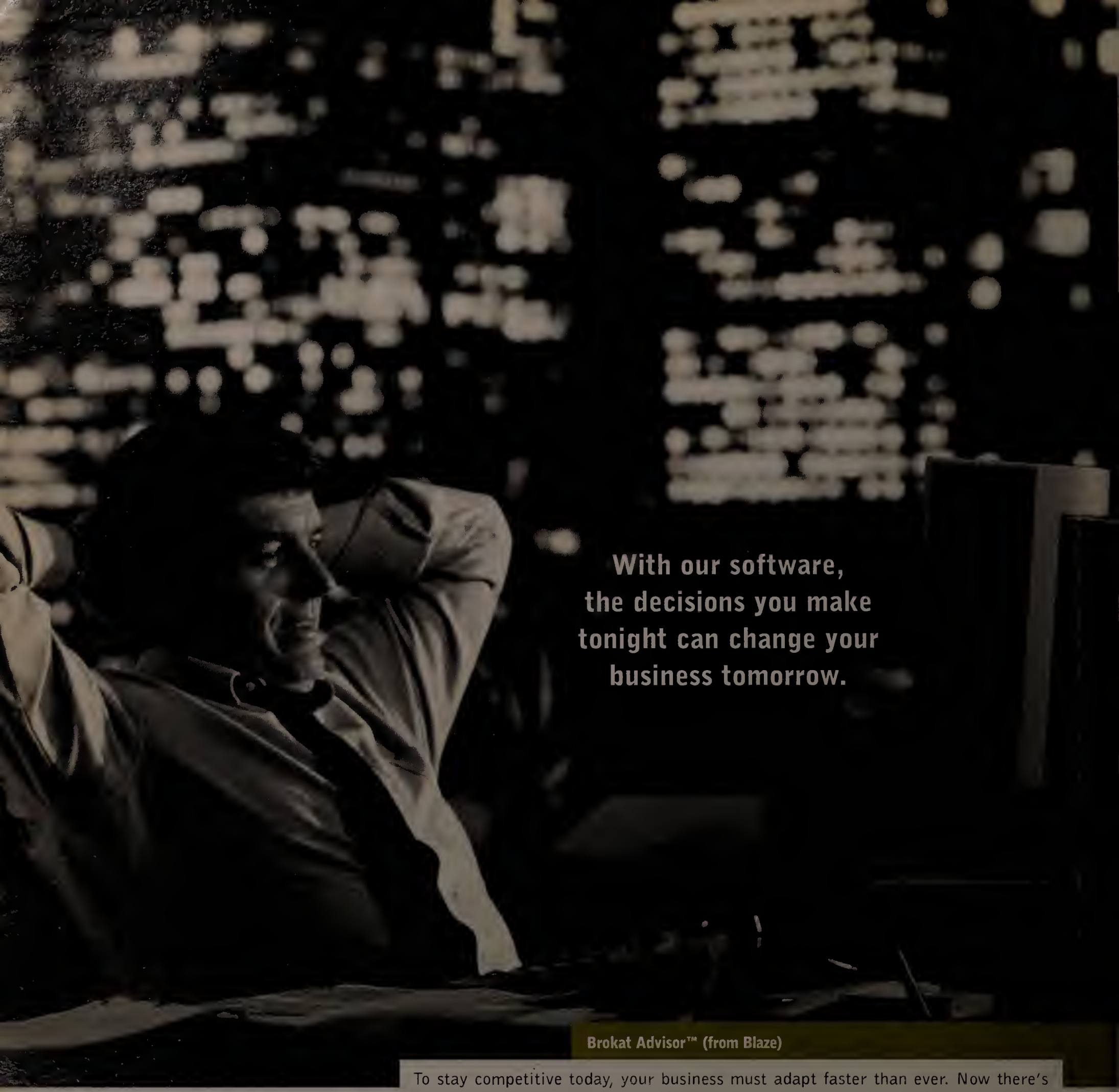

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BUSINESS

ASP SCRAMBLE

Months before Adidas America was due to go live with its new Web site, its application service provider (ASP) went belly-up. It's a problem many firms are likely to face, especially if the economy continues along its leave-no-survivors path. ▸ 32

TECH TRIAGE

Charlie Feld has led the IT departments at companies such as Delta and Frito-Lay. Now, he explains how companies can perform checkups on their IT organizations, especially in times of economic uncertainty, to ensure that they're making the best possible contributions to the business. ▸ 37

QUALITY CULTURE

Within India's software development community, quality is almost a religion. The results are apparent at companies like Infosys Technologies in Bangalore, from which U.S. firms could learn a great deal. ▸ 40

TYPECASTING

Are you an icebreaker, guru or Sherlock? In her new book, *Winning the Technology Talent War,* Mary Ellen Brantley breaks down the different personalities that are critical to a successful IT team and explains how to identify them and best seize upon their strengths. ▸ 43

MORE

Opinion: Eric Sinrod 32
Sound Bytes 36
Workstyles..... 37
Advice 46

JOHN HARDING

GREG GIBBONS, CIO at See's Candies, says he's had no trouble soliciting résumés for two development positions.

FULL CIRCLE ON THE HIRING FRONT

FORGET ABOUT THE SIX-FIGURE STARTING SALARIES WITH STOCK OPTIONS. Don't worry about perks such as dog-friendly offices and in-house massages. The days of outrageous demands from employees seem to be over. Many IT departments are still hiring, but they're not nearly as desperate as they were last year.

44

Stranded Businesses Race to Replace Belly-Up ASPs

Adidas, eHobbies stress importance of getting contingency plans in place now

BY MARC L. SONGINI

Faced with the sudden collapse of its e-commerce application service provider (ASP) last summer, Adidas America Inc. was ready to pull the plug on a budding initiative to sell its sporting goods via the Web.

Instead, Adidas raced to find a new ASP and ended up signing on with a company that was able to get up to speed quickly and customize a set of enterprise resource planning (ERP) applications for managing Adidas' warehouse and retail operations.

"This was a migration for survival. Without it, we would have had to shut down the operation and start from scratch," said Dieter Schoenegger, chief technology officer at Adidas America in Beaverton, Ore.

Adidas America, a subsidiary of Germany-based Adidas AG, was one of several companies forced to scramble to replace Sunnyvale, Calif.-based Pandesic LLC's services after it went out of business in August. Now, as the Nasdaq Stock Market continues to suffer and more high-tech firms close their doors, others are finding themselves in the same uncomfortable shoes as Adidas.

Any ASP — indeed, any high-tech start-up — is a likely candidate for rapid demise within its first five years, said Lew Hollerbach, an analyst at Boston-based Aberdeen Group Inc. "About 80% fail," he said. "It's still a young industry."

That's why it's always a good idea for companies to have contingency plans in case they need to migrate data or files from their ASPs to their own systems, he said. That could mean using a third-party storage company or safeguarding data on a local server.

Santa Monica, Calif.-based eHobbies.com Inc., another Pandesic customer, decided to set up its own internal systems after briefly running a storefront on Yahoo.com. But the process was difficult for all involved, said Chief Operating Officer Brent Cohen.

"It was like driving a car 100 miles an hour and swapping out the engine while the car's still running," he said. "It was a disruption, no doubt about it, but we're doing OK now."

After Pandesic's collapse, Portland, Ore.-based eVineyard had to endure the time-consuming process — in the midst of the holiday season rush — of retraining its staff in new shipping and receiving systems that were running on externally hosted ERP applications from Epicor Software Corp. in Irvine, Calif.

"I wouldn't want to have do that in November again," said Michael Osborn, vice president of technology at eVineyard. "It wasn't so much the software but the operations — teaching the people in the logistics centers how to ship wines. That is something I don't wish on anyone, but we had no choice."

Changing Course

Executives at Adidas America were shocked when Pandesic bailed on the project just five months before its sites were due to go live, said Schoenegger. The project involved about 25,000 items across more than 25 product lines — a technological challenge that almost made Schoenegger throw in the towel.

Salvation came when the company found Cutsey Business Systems Ltd., a software vendor and ASP in North Bay, Ontario.

The firm's FDM4 wholesale distribution applications, built around an embedded database from Progress Software Corp. in Bedford, Mass., were able to manage the complex style, color and size processing requirements that Adidas faced, Schoenegger said. In fact, the Cutsey system cost less than the SAP-based Pandesic applications, and it processes transactions faster, he said.

The sites went live in late January, one month ahead of schedule and at a cost of less than $2 million.

The applications did require Cutsey to do extensive customization work before Adidas could use them, but prototyping helped the project move quickly, according to Schoenegger. Within three and a half months, Adidas had a consumer storefront and a business-to-business site, both aimed at soccer teams, that together receive 600,000 to 1.4 million hits each day.

The deal with Cutsey "made the difference between a kamikaze landing and a soft landing," he said. It was also "an order of magnitude cheaper" than rivals' offerings. ◗

Adidas America's Web Initiative

The sporting goods retailer's sites went live in late January.

- **Storefronts exchange data in electronic data interchange** format with Adidas America's distribution center system, which is operated by United Parcel Service Inc.'s Atlanta-based UPS Logistics Group.
- **Orders are executed by the UPS logistics system** and confirmed with Cutsey's FDM4 ERP applications.

Computerworld editor Mark Hall contributed to this story.

ERIC J. SINROD/E-LEGAL

Caution on Net Voting

THE CONTROVERSIAL 2000 presidential election effectively established that people are sick of hanging chads and butterfly ballots, but inquiries continue into whether the Internet can help solve the nation's voting problem.

The Internet Policy Institute (IPI) stepped into the controversy last month with a fairly comprehensive report recommending caution and further research before we rush headfirst toward online voting.

This appears to be wise counsel. Indeed, the rarity of a statistical electoral tie presented by the Bush/Gore election results shouldn't cause us to jump too quickly into areas that may present many other problems.

ERIC J. SINROD is a partner at the San Francisco office of Duane, Morris and Heckscher LLP. He can be reached at ejsinrod@duanemorris.com.

The IPI groups Internet voting systems into three primary categories: poll site, kiosk and remote. Poll site Internet voting would offer more convenience and efficiency than traditional voting systems, as voters could cast their ballots from a number of polling places and counting the votes would be quite fast. Because the physical environment would be controlled at the polling sites, it would be possible to manage some security risks. The IPI concludes that poll site voting could be attempted with experimental prototypes within the next several election cycles. Certainly, taking baby steps at first makes sense.

Kiosk Internet voting is somewhat similar, but voting machines would be placed away from traditional voting locations and would be set up in convenient places like schools, libraries and malls. Like poll site voting, kiosk voting would make it possible to manage some security risks by controlling the physical environment.

The IPI believes that kiosk voting could be deployed after poll site voting is attempted, with kiosk voting terminals set up in certain public places. Taking matters one step at a time like this is prudent.

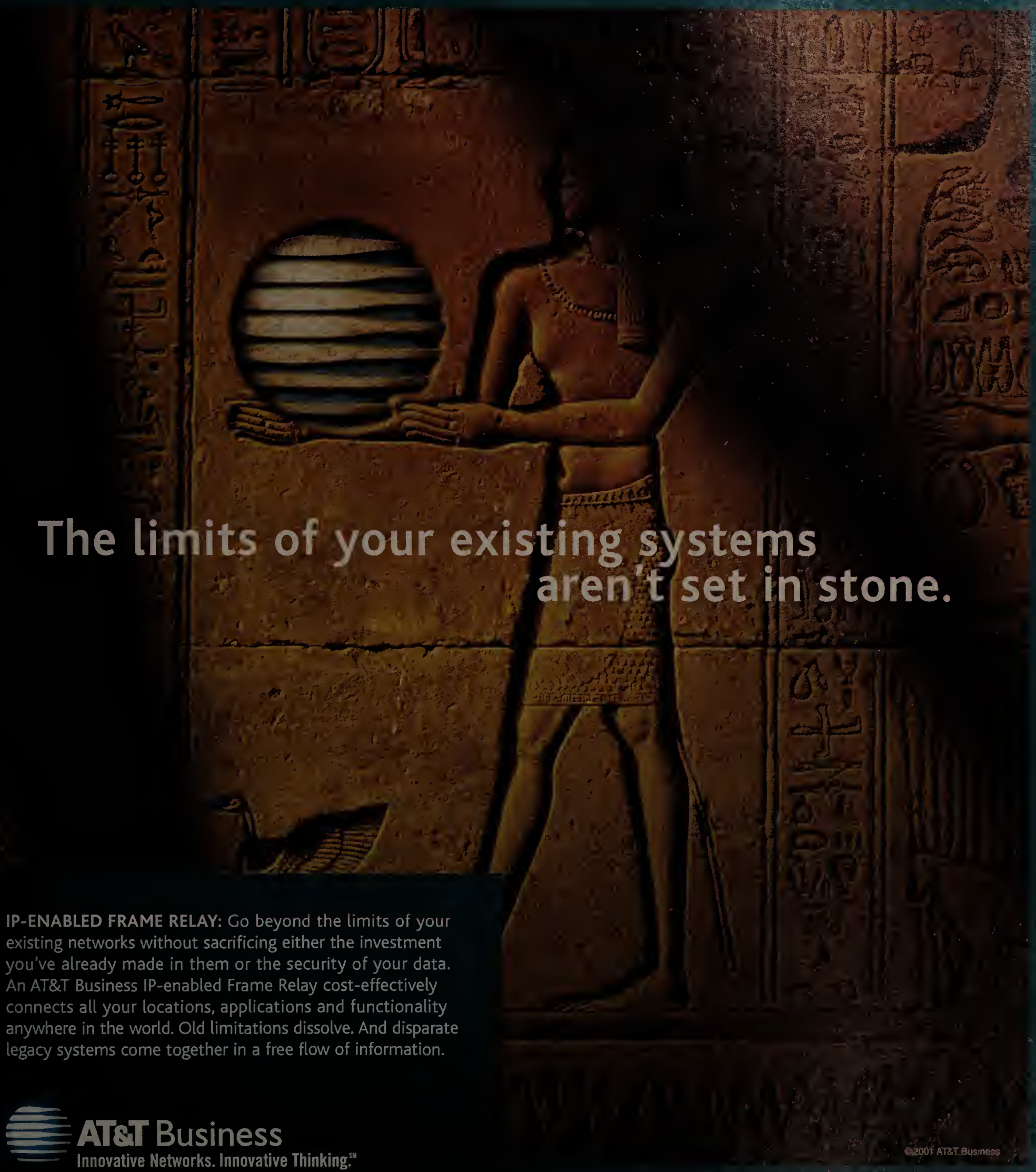
Remote Internet voting would let voters cast ballots from practically any location that's Internet-accessible. While this offers tremendous convenience, it also serves up potential security risks because the physical voting environment isn't controlled.

In fact, the IPI responsibly concludes that remote voting poses "a significant risk to the integrity of the voting process and should not be implemented for the foreseeable future."

Clearly, issues relating to security, secrecy and fraud must be researched and addressed.

Not only must technological issues be dealt with when it comes to online voting, as the IPI report notes, but sociological issues relating to voter participation and other matters must be tackled. For example, the impact of Internet voting on demographic groups that have less access to computers should be considered.

There is no question that the entire world is moving more and more online, and voting probably will go there too. But still, let's walk, not run. ◗



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Hospital Starts $16M Web Upgrade

BY JULEKHA DASH

The Children's Hospital of Philadelphia is in the midst of a $16 million upgrade to its Web site that's aimed at adding more interactive services within the next few months.

The 150-year-old hospital plans to create online support groups for individuals whose family members face similar chronic conditions.

During the past six months, the organization has added pediatric health and wellness information, as well as a feature that allows patients to make appointments and receive referrals online.

The site is being designed by staff from the hospital along with consultants from Computer Sciences Corp. in El Segundo, Calif., and Digital Ingenuity Inc. in Philadelphia.

Though upcoming government regulations, which many observers are referring to as the "Y2k of health care," have forced some cash-strapped hospitals to hold back on their e-business projects, that isn't the case at Children's Hospital, said Al Sinisi, vice president and CIO at the hospital.

Many larger health care networks are transforming their Web sites, but very few have allocated such substantial budgets as that of Children's Hospital, said Mike Davis, an analyst at Stamford, Conn.-based Gartner Inc.

In fact, a Gartner survey of 88 health care organizations revealed that just 2% have allocated $1 million or more to their Web budgets. ◗

Online Market Taps Excess

SOUND BYTES

Automation has helped retailers and suppliers squeeze more out of their razor-thin profits. But there's an indelible constant: Retailers and suppliers alike continue to get stuck with excess inventories that eat up warehouse space and cost big bucks to store.

That's where RetailExchange.com Inc. comes in.

The Boston-based online business-to-business marketplace for excess consumer products matches buyers and sellers in categories such as apparel, electronics, and health and beauty aids.

Last month, the online marketplace named **Frank Carpenito**, a veteran of Cincinnati-based Procter & Gamble Co. and Purchase, N.Y.-based PepsiCo Inc., as its president and CEO. *Computerworld*'s Thomas Hoffman spent a few minutes with Carpenito, 38, to discuss his plans for the electronic exchange.

What are the differences between RetailExchange.com and other competitive exchanges?

RetailExchange was built with retailers in mind and for streamlining the negotiating process for inventory off-line in the excess space. Secondly, we have an 800-ton gorilla called Gordon Brothers [the majority shareholder in RetailExchange] that helps us deal with companies with inventory problems. The third piece [is] we really recognize that we're in an evolving marketplace [involving] speed of adoption to the Web. We're trying to dig into the marketplace to understand where it's going.

FRANK Carpenito: We're in an evolving marketplace.

What are your short- and long-term plans?

Short term, the biggest challenge of a young company is managing its growth effectively; making sure we are actively and effectively penetrating and growing our market and building out the infrastructure needed to do that. As [we're] managing that, we also want to make sure we're advancing customer adoption [of RetailExchange]. Longer term, not unlike most young start-up companies, we have a very good [business] model and most of its aspects are working well, but we need to fine-tune what customers want us to be doing.

Also, we are clearly committed to building an excess marketplace. We're in 13 categories now, some stronger than others, so [we're] building out some of the categories we're in and adding to those categories that we're not yet in.

Right now, we're in categories like apparel, jewelry and toys. We're also in other categories like hardware and food, but those are in the infancy stages of their development. ◗

WORKSTYLES

Lands' End Offers Catalog of Family Perks in Rural Setting

What It's Like To Work at...

Interviewee: Phil DeKok, manager of IT training and sourcing
Company: Lands' End Inc.
Main location: Dodgeville, Wis.
Number of IT employees: About 250, plus about 60 contractors, mainly for legacy systems support
Number of employees (end users): 5,200
What's your biggest recruiting challenge? "Where we experience difficulty, like everyone else, is in the hard-to-find skills areas: Web development, Unix, Java. [Location] is a challenge because it's difficult to describe the feeling you get working in a rural setting to people who may be working in Silicon Valley or on the East Coast. But we have success recruiting in the Midwest."
IT training initiatives: "We're on a very deliberate course to move our mainframe programmers into hard-to-fill areas where there aren't as many external candidates."
Major IT initiatives driving the retooling: "A strategic focus on Web-enabling our legacy applications and a strategic shift to the [customer relationship management] environment."
Career paths: Technical, business analysis and IT management paths. "We're always working on those to provide flexibility and creativity in people's careers."
Bonus programs: An annual companywide bonus tied to corporate performance.
Workday: "We have flexible work schedules so, within reason, people can set their own hours. Our core hours are 8:30 a.m. to 4 p.m. The day you put in depends on the individual teams and customers you serve. Usually, people work 40- to 45-hour weeks."
Come on. Really? "There are occasions when people put in 11- to 12-hour days when they're on deadline, but that's not the norm."
Must people carry beepers? Cell phones? Those responsible for systems maintenance and servers carry beepers; a cell phone is assigned to those on the on-call overnight rotation.

"If you're on call, your name is thrown into a hat, and every other month we have a drawing for a pretty substantial gift, like weekend getaways for two, a gift certificate to a furniture store in Madison, a big-screen TV or home theater system."
Dress code: Casual, but "we stay away from shorts and T-shirts."
Kind of offices: A "beautifully landscaped" campus setting with IT staff and end users working together.
On-site day care? Backup day care "that parents can use when their primary day care giver is unavailable or ill. We also offer weeklong Kids Camps for employees' children throughout the summer."
Other activities: Special-interest groups, including a photography club, scrapbook club, gardening club and Toastmasters International; on-site performances such as private readings by author Garrison Keillor; birthday parties for employees' family members; and a choir that carols around the campus during the holidays, led by DeKok.
Little perks: $50 restaurant gift certificates and other gifts to recognize major project milestones or a job well done; a departmental summer picnic; an annual holiday party. "The management team gets together and develops skits for those . . . [and] poke a little fun at ourselves. This past Christmas, we did 'Rudolph the Red-Nosed Reindeer.' I was the Burl Ives snowman character, and our CIO [John Loranger] was Rudolph."
Why have you stayed at Lands' End for 16 years? "A lot of it has to do with the corporate culture, the respect for individuals, the family-work balance and the opportunities [to build] your own career."

– Leslie Jaye Goff (lgoff@ix.netcom.com)

CHARLIE FELD

Give IT a Checkup

AS THE ECONOMY SLOWS, stock valuations sink and pressure mounts to reduce IT spending, it's a good time to understand the health of your IT assets. There are warning signs that suggest that an IT department isn't making the strongest, most cost-effective contribution to your business. But a rapid triage can help identify weaknesses and determine your company's short- and long-term needs.

As with any triage, the first step is a visual inspection. Look at what's on everybody's desktop. When you see Windows 95 and 2000, Excel and Lotus 1-2-3, or ThinkPads and 486s with 250MB hard drives, you can assume that systems can't effectively share information.

Warning signs that your IT assets might be unhealthy include the following:

- IT spending focuses on the needs of an individual department rather than the enterprise.
- Decision-making for IT purchases is decentralized; the CIO and executive committee don't have a shared strategic vision.
- Projects operate in a vacuum, are consistently over budget and miss deadlines.
- Less than 30% of the application development budget goes to new development projects.
- There's no standard enterprisewide infrastructure or well-structured data environment.
- Technology and applications go back decades and haven't been consistently renewed and retired.
- IT expenditures boom and bust, showing inconsistent reinvestment.

Look to your vital signs: business strategy, technology and funding. Map your business strategy against your IT reality and see if they match. Here are examples of five categories:

Business context: Does your CIO have a seat at the senior management table? Senior management must share a centralized IT vision. Lay out the state of your company's current performance, organization and strategy and ask, "Do we have enterprisewide themes that focus on areas such as customer service, supply-chain management and employee connectivity? Is there tight linkage between these themes and overall corporate initiatives?"

Applications portfolio: Identify current systems and projects and assess their quality. Are applications rigid and compartmentalized? Do you have to re-enter basic information, such as customer addresses, for different applications? Do your priorities relate to your business themes?

Technology infrastructure: What are the kinds of technologies in your organization, from mainframes to desktops, and the number in each category? Do they have difficulty interacting, and do they cause problems across other systems? Who selects new technologies, and how do they make the selections? Are they consistent with the business context and the applications plan?

Organizational focus: When people say, "We're short of IT talent," they're missing the real problem. The trouble comes from spotty leadership by business executives and CIOs. Do you have leaders capable of setting a direction, staying focused and making an exciting, energized environment? You can't leave this solely to human resources. Your human resources department can help, but it's the job of the CEO and CIO.

Governance: How are technology decisions made? In most organizations, they're tactical, fragmented and low in the company. You need the right decision-making framework to get funding and keep focused. A senior leadership board that shares the vision can help you sort through sequencing and funding.

Connect the dots between business context, application portfolios, technology infrastructure, organization and governance (BATOG). If your company has become bogged down by complexity, is tied to legacy systems or is compartmentalized, chances are that systems, not business objectives, are driving your technology decisions.

Diagnosing the health of your organization using this framework usually takes about 90 days. Organize your IT vision around BATOG, discuss the current reality with the senior team, and engage it in creating a three-to-four-year plan with quarterly toll gates to ensure that you're on track. You need constant calibration because things change, such as management, mergers, economic conditions and new technologies. This framework can act as a compass in rough seas. Without it, I can't imagine how an IT organization can tell which end is up from year to year. ◗

CHARLIE FELD will be a regular online contributor to a new *Computerworld* venture targeted toward CIOs. Watch for it beginning May 20 at **www.computerworld.com.**

Feld is president and CEO of The Feld Group, a technology leadership firm in Dallas. In this role, he's the acting CIO at First Data Resources in Omaha and has served as CIO at Delta Air Lines Inc. in Atlanta. Contact him at Charlie.Feld@feldgroup.com.

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THE VISITORS FROM A PARALLEL UNIVERSE

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Lessons From India Inc.

Strict attention to quality standards by Indian programmers is delivering valuable project management lessons to U.S. IT managers. By Gary H. Anthes and Jaikumar Vijayan

Bangalore, India

ONCE A SLEEPY pensioners' paradise, this city today is choked with traffic. Much of the greenery that gave Bangalore the nickname "Garden City" has been hacked away to make room for office towers, and people on the street cover their mouths and noses against the pollution. Telephones, water and electricity remain unreliable, and the roads and airports are decrepit, by Western standards.

But against the chaos of much of downtown Bangalore stands a shining symbol of India's aspiration to become a software superpower. The headquarters of Infosys Technologies Ltd., set on a 29-acre campus on the city's outskirts, is a group of gleaming multistory buildings containing development and test centers, classrooms, dormitories, an auditorium with a 40-screen video wall, sports facilities and two huge food courts that serve traditional southern Indian food and hot Domino's pizzas that are delivered to employees' desktops.

Founded in 1981 by six engineers armed with just $250 in loans from their wives, 8,900-employee Infosys in the first three quarters of last year earned a handsome $93 million on revenue of $293 million. The company [Nasdaq: INFY], today has a market capitalization of about $10 billion — more than that of Computer Sciences Corp. and Sapient Corp. combined.

Infosys attributes much of its success to rigorous quality control. Indeed, software developers in India have made quality something of an obsession. Most developers here pursue and win the International Standards Organization (ISO) 9000 certification for excellence and then go on to climb the Capability Maturity Model (CMM) ladder. CMM is a product of the Software Engineering Institute (SEI), run by Carnegie Mellon University in Pittsburgh. It describes the practices that make for effective software development, and it lays out a five-level progression from ad hoc, chaotic processes to mature, disciplined approaches.

Of the 42 organizations worldwide that have reached Level 5 on the CMM scale, 25 are based in India, according to the SEI.

Relatively few software shops in the U.S. seem prepared to invest the considerable time and effort needed to reach those lofty levels, but there's much they could learn from Indian developers, such as how to improve software quality by measuring and analyzing defects, rework costs and estimation accuracy. And software quality experts say the payoff isn't just in less-buggy software but in big productivity gains as well.

A high CMM rating is a "badge of honor" for software professionals and software companies in India, says Satish Bangalore, managing director of Phoenix Global Solutions India Pvt. in Bangalore. "It's almost shameful for them to admit they are a Level 2 company or that they didn't get ISO 9000 certification on the first or second attempt," he says.

Phoenix Global Solutions was set up in 1996 by Hartford, Conn.-based Phoenix Home Life Mutual Insurance Co. to take on legacy systems maintenance and Y2k remediation. Phoenix wanted to have 30% of its total IT staff in India, a goal it has nearly achieved.

Low labor costs and an abundance of well-qualified English-speaking IT workers were the main reasons Phoenix turned to India. Quality, stemming from the

CMM disciplines, was a byproduct, says Bangalore, who is also chief technology officer at the U.S.-based parent company. "To make this global team concept work, there is no other option but to make it process-driven rather than people-driven," he says. "We had to follow good practices for documentation, communications, signoffs, revisions — all these needed to happen if this model was going to work."

For its part, Transportation.com, an Irvine, Calif.-based online transportation management firm, has been outsourcing most of its core application development to Infosys for the past year and has found the quality of work to be outstanding, says CIO Dan Bentzinger. "I can't think of a better solution [than Infosys], from the standpoint of cost, quality, scalability and guaranteed delivery, in terms of hitting deadlines," he says.

Software developers in India have seized upon the quality religion in much the same way the Japanese embraced the quality concepts of W. Edwards Deming in the 1950s and 1960s. Attention to quality in Japanese manufacturing cost U.S. automakers a rapid loss of market share until Detroit belatedly got on the quality bandwagon about 20 years ago, and many experts say U.S. automakers are still playing catch-up.

Today, American software quality guru Watts Humphrey is known in India as "the Deming of software," and a year ago, the Watts Humphrey Software Quality Institute in Chennai, India, was dedicated in his honor. He created the CMM at the SEI, where he's now a research scientist, in 1987, but he may be better known today in India than in the U.S.

CMM isn't the only quality game in town for many Indian developers. Infosys has embraced ISO, CMM, the Six Sigma discipline pioneered by Schaumburg, Ill.-based Motorola Inc. and the Malcolm Baldrige National Quality Award framework for tracking software quality.

As a result, Infosys — whose clients include Cisco Systems Inc. and Nortel Networks Inc. — today has well-defined and repeatable processes for measuring quality. It measures and manages such things as in-process defects, rework costs, defects delivered to customers, cost overruns, schedule slippage and estimation accuracy, says Nandan M. Nilekani, managing director and chief operating officer at Infosys.

Such processes are only part of the positive changes being driven by quality standards, Nilekani says.

The Baldrige framework requires a company to take a more holistic approach to systems, business results, human resources practices and leadership qualities, he says. One example: The Baldrige model

> [Citicorp's quality processes have resulted in] lower defect rates, faster turnaround times and adherence to service levels 100% of the time.
>
> **RAMA SIVARAMAN, CONSULTANT, CITICORP OVERSEAS SOFTWARE LTD.**

MAKING QUALITY priority No. 1. From left: Rama Sivaraman, consultant at Citicorp Overseas Software; D. Chandrasekar, general manager at Wipro Technologies' development center; L.N. Rajaram, director of the Watts Humphrey Software Quality Institute; David L. Avery, director of Visteon Software Operations; and K. Padmanabhan, vice president of Tata Consultancy Services. All organizations are in Chennai, India.

requires firms to identify leaders, groom them and draw career plans for them, Nilekani says. As a result, Infosys has just finished setting up a $7.3 million leadership institute on a 100-acre campus near Bangalore dedicated solely to that function.

Executives like Nilekani say they believe this near-fanatical attention to quality has been key to India's recent success in software development. India's software lobby, the National Association of Software and Service Companies in New Delhi, estimates that annual revenue for India's software industry will grow from $5.7 billion this year to $87 billion by 2008.

Falling Barriers

When U.S. firms started sending programming offshore about 10 years ago, it was mostly low-level work such as maintenance of legacy applications, followed by code repair for the Y2k rollover. But as Indian firms began to prove themselves, U.S. companies started sending over higher-level work such as the development of e-commerce applications.

"The barriers are coming down as people get more comfortable and the [Indian] teams get legitimized," says Bangalore. "We may lose the distinction between the offshore team and the on-site team, and there may be a constant flow of people back and forth."

U.S. companies will begin to address quality issues when they start losing revenue and market share to high-quality competition from India and elsewhere, Humphrey predicts. "Then you'll see a reaction, just as the automobile industry reacted when Toyota got their business," he says. "Until we started making buying decisions based on quality, the auto industry did not respond to the quality movement."

> For a long time software engineering was considered an art not a science. Those who did not understand it tolerated it as a necessary evil.
>
> **DAVID L. AVERY, DIRECTOR, VISTEON SOFTWARE OPERATIONS**

PABLO BARTHOLOMEW/LIASON AGENCY

But many U.S. software developers have already begun to respond, says Kaushik Bhaumik, an associate principal at McKinsey & Co. in Palo Alto, Calif. "There has been broad recognition in the U.S. now that quality does matter," he says. "I'd expect a lot of U.S. firms to start playing catch-up. And as software matures, we'll start seeing quality as a basis for competition, rather than just product functionality."

For example, Dearborn, Mich.-based auto parts giant Visteon Corp., which in 1999 established Visteon Software Operations in Chennai, launched its CMM efforts partly in response to a software glitch that forced the company to spend tens of millions of dollars on an odometer recall. "Management wanted to know what we could do so that we will never have another software defect," says David L. Avery, director of the Indian facility, which is now at CMM Level 5. "Anything that we did that cost less than the recall was OK."

U.S. software developers are often accused of racing a product to market as quickly and cheaply as possible, and quality be damned. But Girish Seshagiri, CEO of Advanced Information Services Inc., a software developer in Peoria, Ill., says the attitude that quality isn't affordable is fundamentally flawed. "Ultimately, productivity is the issue," he says. "If you address the quality issue, it makes a significant impact in terms of cost reduction and reduction in cycle times."

It's this adoption of quality practices early in the development cycle that distinguishes Indian developers, says Bhaumik. "Not only have they been able to reduce the number of bugs per thousand lines of code and increase the percentage of first-pass user acceptance testing, they are able to do it consistently from project to project."

In a recent study, McKinsey found that Indian firms ranked at CMM Level 5 generated 96% quality improvements and 75% productivity gains, compared with those organizations at CMM Level 2, where U.S. firms are typically ranked.

Bhaumik says Indian developers don't employ any special coding tools or techniques beyond what's in use in the U.S. But they're meticulous about preparing documentation, planning for alpha and beta releases, establishing user acceptance procedures, regression testing procedures and the collecting metrics during development. "It's all the processes surrounding code development where they have really gone ahead of everyone else," Bhaumik says.

Citicorp Overseas Software Ltd. in Chennai uses a project management system that documents resource requirements, schedules, budgets, review and tracking mechanisms, risk analysis methods and contingency plans, according to Rama Sivaraman, a consultant at the company, which is a subsidiary of Citibank Overseas Investment Corp. In-project processes include both qualitative and quantitative process-tracking mechanisms for looking at things such as code size, number of modules completed, number of defects found and tests completed, she says.

Implementing quality measures such as ISO and CMM can also help companies move from being heavily people-dependent to more process-reliant, says Ashutosh Gupta, CEO of Deutsche Software (India) Ltd., a Bangalore-based subsidiary of Frankfurt-based Deutsche Bank AG.

By consistently documenting every activity in the development cycle and having processes for properly handing over project tasks when an individual leaves, much of the disruption caused by employee attrition is minimized, Gupta says.

"There is this myth that software development is a creative effort that relies heavily on individual effort," says Gupta from his air-conditioned office high above the din of traffic-clogged Mahatma Gandhi Road. "It is not. It is just very labor-intensive, mechanical work once the initial project definition and specification stage is past." ◗

Quality at Any Cost?

There are several well-defined road maps to better software quality, such as the Capability Maturity Model (CMM) for software. But it's expensive to substantially improve existing software development processes, and sometimes U.S. managers believe the required investment just isn't worth it.

"Pragmatic executives are often reluctant to put up an investment that will take a year or two to pull off, and sometimes three or four years," says software quality expert Watts Humphrey.

Some U.S. companies have found it easier to make that investment in India rather than in the U.S., at least initially. Motorola set up a development center in India in 1993 when it found it hard to substantially improve its U.S. software practices, says Michael Cusumano, who was a consultant to Motorola at the time.

"The CMM demands lots of documentation and traceability procedures, very intensive quality assurance procedures and process support people, so there's a lot of resistance from managers," he says. "But setting up a facility from scratch and introducing the right practices from the very beginning is a good way to get a software development organization to a very high level."

A few years later, Motorola imported those high-quality practices back to its U.S. development centers, but it was slow going and required tailoring the CMM for smaller teams, says Cusumano, now a professor of management at MIT's Sloan School of Management in Cambridge, Mass.

Implementing stringent quality disciplines such as CMM isn't easy to do in large, well-established IT organizations, says Satish Bangalore, chief technology officer at Phoenix Home Life Mutual Insurance. "When you are talking of an IT organization that is 30 years old, you are talking of an organization that is carrying a lot of baggage," he says. "It's hard to instill new discipline unless there is a very strong survival necessity."

CMM principles originated at IBM for use in developing operating systems and complex applications for its Federal Systems Division, Cusumano says. "The CMM is really designed for large, bureaucratic types of industrial organizations," he says. "In a lot of software markets, time to market and process flexibility are more important than quality."

– Gary H. Anthes and Jaikumar Vijayan

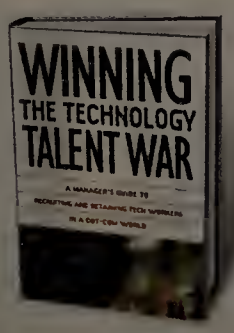
MARY ELLEN BRANTLEY interviewed 40 to 50 CIOs, chief technology officers and CEOs as research for her book (co-written by Chris Coleman) *Winning the Technology Talent War.*

ANN STATES/SABA

Building An IT Team

What makes up the ideal IT team? People with complementary skills and backgrounds who, working together, can help an organization reach its goals. That's one of the themes of Mary Ellen Brantley's new book, Winning the Technology Talent War *(McGraw-Hill, 2001). Brantley and co-author Chris Coleman break such a team into five distinct roles:*

- **Icebreaker:** *The individual who can break through barriers and create opportunities for the company.*
- **Sherlock:** *The critical thinker who can be the systems analyst or problem solver.*
- **Straw boss:** *The leader of a project or program team.*
- **Guru:** *The resident expert on a particular technology.*
- **Sherpa:** *The technically functional "worker bee."*



Brantley recently spoke with Computerworld's **Rick Saia** *about those five roles and IT team development.*

What must CIOs and upper-level IT managers do to find out whether this person is a "Sherlock" or that person is a "straw boss?" What we typically do is assess the members of the team. So for every one of these roles, I have a competency model. We typically do 360-degree assessment, where people are assessed by their bosses, their peers and themselves, and, depending on the size of the company and the budget, we look at combining that with other instruments, such as the Myers-Briggs Type Indicator, that help you understand preferences. You get a real feel for the career path of the individual.

My model is character-centered. How big is the learning engine? How do they like to learn? Do they develop others? Do they transfer knowledge in the organization?

Then we look at analysis. How good are they at critical thinking? Can they solve problems quickly? Do they have good business acumen? It's one thing to be able to solve a problem technically, but if the role really calls for a business perspective, then you're missing something pretty significant.

Then we look at how people relate. How perceptive are they? How well are they able to influence others through either the spoken or written word? And then, can they play together?

The other part of the model is performance. We look at not just achievement, but we also look at execution. So, how do they get results? In other words, do they break glass in the process of doing it? Or do they build unity within the organization in doing it? Then we look at optimism: Does the individual have a tendency to view obstacles as temporary setbacks and continue to persevere until results are achieved?

Do you know of any companies that have taken this or similar approaches and met with success? As I did the research for this book, I interviewed between 40 and 50 CIOs, CTOs and CEOs of technology companies. In every interview, I would make them tell me about their culture . . . and then I would ask them about [the five] roles. And they all identified a particular role as being something that they were missing. In working with companies, I'm seeing all of these roles showing up. They call them different things . . . but they basically are all of these roles.

As we evolve into more of an Internet-driven economy, how important is it for an IT organization to bring together these five knowledge types? What particular functions or projects might really cry out for something like this? A systems integration project would cry out for something like this. Also, product design [or] software design for a particular company calls for this type of structure. I also see it in an IT department in a company that's maybe developing specific projects.

Are we seeing more people gravitating to any one or two of the five types? And, taking that a step further, would it be dangerous if we have, say, more "icebreakers" than "sherpas"? Sherpa tends to be the feeder for a lot of the other positions. A sherpa can often be a new college hire coming in, and they're going to come in as a programmer/analyst. And then they'll work their way up. It really would depend on the needs of the company. Icebreakers are the people that are gonna be out there getting your business, so you're certainly gonna need a certain number of those.

But boy, you had better be able to deliver on those capabilities once you get that business, because the icebreakers are establishing trust and relationships with a client base. Then you have to have the people to deliver the solutions. So it's a balancing act. ◗

WHO IS SHE?

Mary Ellen Brantley is founder and president of BrantleyHouse LLC, an organizational development and leadership consultancy in Atlanta. She has more than 20 years of field management experience in the technology industry.

More candidates in the job market. Vacancies filled in half the time. Salary offers that make sense. The IT job landscape shows signs of returning to an employer's market. By Leslie Jaye Goff

THE HIGH-TECH HIRING forecast for the next three months is either partly sunny or partly cloudy. It all depends on the window you're looking through.

Talk to IT managers, and they say they're increasing their head count in the first half of this year, hiring business analysts, project managers and developers. Companies as diverse as See's Candies Inc., Republic Mortgage Insurance Co. (RMIC), Hallmark Cards Inc. and Aflac Inc. have new Web-enabled development projects and are still tweaking their recruiting strategies to find the right mix of skills.

Even dot-coms are hiring. Honolulu-based click-and-brick travel service Cheap Tickets Inc. and Digital River Inc., a Web development and hosting firm in Minneapolis, are two that plan to expand their staffs this year.

"WE'RE LIKE THE ANTIDOTE to life in a dot-com," says Greg Gibbons, MIS director at See's Candies.

JOHN HARDING

But while IT organizations are hiring, job availability varies widely. At the seven companies contacted for this article, planned staff increases range from nil to 24%, representing fewer than 70 newly created positions. And hiring in the dot-com sector is by no means a given, especially in New York's Silicon Alley. CarDay Inc., for example, will try to get by this year with only six IT staffers.

So talk to IT job seekers who are victims of the gloomy dot-com weather, and they will tell you that getting off unemployment is taking far longer than they expected.

Without a doubt, the balance of power in IT recruiting is shifting; it's looking increasingly like an employer's market. More candidates seem to be available, IT hiring managers say. And companies are typically filling open positions in six weeks to three months.

Additionally, the once elusive candidate with leading-edge Web skills who had eyes only for dot-coms is now more interested in longevity.

"The economic climate is affecting our recruiting efforts in two ways," says Deron Streitenberger, CIO at RMIC in Winston-Salem, N.C. "The candidates that would be on the market regardless are seeking more job security, plus several local organizations have downsized, introducing some excellent candidates into the market that would not have been there otherwise. We've found it easier to acquire new people than it's been in a long time, and . . . at salaries that make sense."

In fact, Streitenberger had slated 16 new positions for the first half of this year, and he filled the majority of them before the end of December. By early

HIRING GETS

March, RMIC's IT department was "only a couple of positions away from being where we wanted to be at the end of Q1," he says.

Managers at large IT organizations say they have appealing sales pitches in the current IT job market, which is populated by disillusioned dot-commers, midyear college grads, independent contractors looking for more stability in a softening market and IT professionals seeking a change.

"We're like the antidote to life in a dot-com," says Greg Gibbons, MIS director at South San Francisco-based See's Candies, founded in 1921. He's had no trouble soliciting résumés for two development positions. "We retain people a long time, we grow regularly and we're highly profitable. And we have plenty of e-commerce projects going on."

QUARTERLY HIRING FORECAST

A mix of stability and Web-based projects has been a compelling message for Kansas City, Mo.-based Hallmark as well, says Julie Salmon, IT human resources director. She's filling 25 open IT positions in approximately half the time it took last year. Moreover, she says, she's losing fewer recruits to competing job offers. "Even with a 24-hour turnaround, last year, a candidate often wasn't available anymore," Salmon says. "Now we don't see them disappearing off the job market so quickly. There's less pressure."

But even though IT hiring is easier, it's not effortless. With a seemingly universal push to implement Web-enabled customer relationship management applications tied to data warehouses and Web-based customer service tools, many companies are seeking candidates with the same skills. These include business analysts and project managers with strong communication skills and developers with Java, Visual Basic, Microsoft ASP, Oracle and ColdFusion skills.

Consequently, although widespread layoffs have alleviated some of the urgency, IT organizations aren't slacking off on retooling and refining their recruiting strategies.

Aflac, for example, has abandoned a strategy of partnering with a local college on an IT boot-camp program. The goal of the partnership was to develop candidates with tailor-made skills, notes Jennifer Pitts, vice president and director of IT at the Atlanta-based insurance firm. "That didn't produce the [level of] quality required to meet our business needs," she explains.

Instead, Aflac has launched a national recruiting plan to go after more experienced candidates. The company is hosting job fairs in major cities, working with technical recruiting firms, posting jobs online and hitting college campuses. In its outreach, it's leveraging a newfound name recognition created by its TV commercials featuring a duck and its appearance on several "Best Places" lists, including *Computerworld*'s 2000 "Best Places to Work in IT."

Because the company is targeting experienced IT professionals instead of entry-level job seekers, Pitts says, the company has retooled its compensation package as well, scaling up base salaries and throwing in signing bonuses.

"I still think the market is really tight," Pitts says. "But we've seen candidates wanting a more stable, traditional firm, so our attraction has increased."

But don't dismiss the appeal of dot-coms just yet. Paul Halstead, chief technology officer at Cheap Tickets, says his company's biggest barrier to recruiting is its island location. The company brings approximately 60% of its new hires over from the mainland. Still, "the fact that we are not purely an online company helps [with recruiting]," Halstead says. ◗

Goff (lgoff@ix.netcom.com) is a freelance writer in New York.

MOREONLINE

For results of surveys on the hiring plans of companies in this story, information about the benefits expectations of entry-level IT workers and a breakdown of hiring industrywide, visit our Web site.
www.computerworld.com/hiringforecast

SANE

Tale of a Dot-Goner

Jesse Martinez (a pseudonym), a Web site producer, moved to New York in March 2000, lured by the bright lights, big-city promise of Silicon Alley. One year later, the lights aren't just dim; it's one big rolling blackout.

Martinez last spoke to *Computerworld* in October, when her dot-com employer was quietly letting people go; at that time, she planned to start looking for a new job before she, too, became a dot-goner [Business, Nov. 6, 2000].

Two months later, Martinez was applying for unemployment after her flailing company's planned merger with a white knight went sour. Although she had never started interviewing and it was the holiday season, she was nevertheless optimistic about her prospects for employment. "I thought I'd have a job by the end of January," she says.

By March, she said she was hoping to have a new position by May, and she'd lowered her salary expectations by about 10%.

The online job-hunting channels she'd used to great success in March 2000 had all but dried up this quarter. She'd scored only about 10 on-site job interviews in three months. In one phone screening with a small Internet development firm, the interviewer told her that he'd received 800 résumés for a single opening for a project manager.

Now, Martinez is weighing other options, placing less emphasis on applying for dot-com jobs and more on researching stable companies.

"It's not like Web project management is my calling in life," she explains. "On the one hand, I had thought of it as my 'in' to New York and this industry. In my mind, I was taking a 'safe' route – making good money, on the management track, improving my tech skills. Even though I knew intellectually that no career is guaranteed anymore, the past few weeks have brought it home."

– Leslie Jaye Goff

MARCH 2000

- Jesse moved to New York to join the dot-com gold rush.
- She received three job offers within three weeks.
- She planned to take company-paid courses on information architecture.

MARCH 2001

- Jesse was collecting unemployment and hanging out with fellow jobless dot-commers.
- She had three job interviews in three weeks.
- She took a Kung Fu class.

What a Difference a Year Makes

Julie Salmon, IT human resources director at Hallmark, says it's easier and cheaper to hire IT workers this year than it was last year. The company, which employs 700 IT professionals, isn't offering lower salaries, but it has lowered the cost of the total hiring package.

2000

Amount of time required to fill IT positions: Four months

Signing bonus required?
Definitely. "We also had to offer some incentives to supplement our corporate bonus programs."

Stock options requested?
Always. "We're privately held, so we don't offer stock options, [and] there were people who wouldn't even talk to us because of that."

Vacation benefits offered: "Sometimes we threw in extra vacation time."

Relocation benefits requested:
"We had some pretty extraordinary demands, but our response was, 'Thanks for sharing.' "

2001

Amount of time required to fill IT positions: Two months

Signing bonus required?
Sometimes. "We've seen about a 30% reduction in the number of signing bonuses we offer. We're able to attract people without them."

Stock options requested?
No. "Now, they don't even ask."

Vacation benefits offered:
Standard.

Relocation benefits requested:
Nothing unusual

— Leslie Jaye Goff

Dear Career Adviser:

You recently answered "Premium Position" about choosing between a Web security job and a system testing job. I'm a quality assurance person with experience in WinRunner. Now I want to move into software development. What are my chances? — WINRUNNER-UP

Dear WinRunner:

You can definitely move from quality assurance to development. But that transition works best once you understand the application you're testing at the code level, not just at the end user or graphical user interface level, says Jerome Fong, senior quality assurance manager at Epylon Corp., an electronic-procurement software company in San Francisco. Then, if you can develop white-box tests in the same language as the application, this shows your ability to understand the development language and to develop good code.

But quality assurance also provides development opportunities, Fong says. As testing tools get more complex, quality assurance engineers will use in-depth development skills to code tests and will need to be as technical as development engineers. Several test-regression tools, including Sunnyvale, Calif.-based Mercury Interactive Corp.'s WinRunner and Lexington, Mass.-based Segue Software Inc.'s Silk Test, have their own development languages. You'll be able to exploit the full capabilities of these tools only when you can develop in their languages.

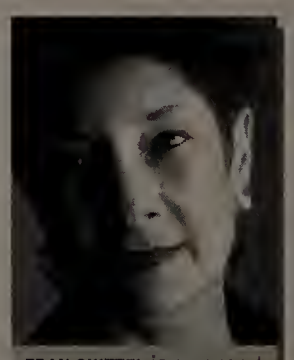
Dear Career Adviser:

I'm an Oracle database administrator with about six years of experience, including programming with shell scripts, SQL and Perl and enterprise resource planning (ERP) experience on a variety of platforms. I have exposure to networking and Internet applications. My background is in high demand, but I'm wondering whether to work at a software vendor or join an application service provider (ASP).

— VENDOR OR ASP?

Dear Vendor or ASP:

The ASP market has been slower to take off than originally projected. This is due to weaker demand from customers and a lack of infrastructure, such as billing and security, built into ASP platforms, says Kevin McClelland, principal at Broadview International LLC, a technology merger and acquisition adviser in Foster City, Calif. As a result, public market valuations in the ASP sector are down, and venture capital funding of ASPs is much more selective and disciplined than in the past.



FRAN QUITTEL is an expert in high-tech careers and recruitment. Send questions to her at **www.computerworld.com/career_adviser.**

Unless you find an ASP with a top-notch management team and strong venture capital backers, McClelland says you may be better served by joining a software vendor with a proven delivery model.

Dear Career Adviser:

I'm a business development and software sales executive with more than 15 years of experience working for product and consulting companies. I recently handled partnerships for a major hardware manufacturer and then headed up sales for a consulting firm focusing on database and ERP applications. I have a good track record but was laid off along with 100 other people. I have what looks like a good offer at an applications software company, but it's considered a turnaround or restart.

— NERVES OF STEEL

Dear Nerves:

Before you accept the job, decide whether your prospective employer is a turnaround or a restart, says Mike Vanneman, a sales executive in Los Altos, Calif. This differentiation will determine what you need to do the moment you're in the door.

Typically, turnaround companies have been spiraling downward for three or four quarters. They're hemorrhaging cash and losing customers and personnel. Often, an executive board replaces the CEO with a turnaround specialist, stripping away product lines and reinvigorating engineering with new initiatives.

Restarts typically have all the restructuring behind them and concentrate aggressively to conquer specific milestones, including new product releases and revenue goals.

Nerves of steel notwithstanding, your better bet may be with a restart that offers compelling technology to solve customers' problems — and has all of the hemorrhaging, cutting and pruning behind it. In this case, the CEO is probably focused on external issues, calling on customers, strategic partners, analysts and the press; the rest of the staff deals with with meeting day-to-day operations and revenue goals.

In either circumstance, be sure you understand your prospective employer's cash position, burn rate and expenses. Unless there's at least six months' worth of cash left in the bank and the above elements are under control, the company could become a fire sale. ◗

BRIEFS

Estimating Costs of Security Breaches

Until now, estimating costs for infrastructure security breaches has been more magic than science, according to Bill Spernow, research director of information security strategies at Gartner Inc. in Stamford, Conn. After collaborating with some of the top information security minds in the industry, Spernow has developed a four-part model for estimating these losses. The model looks at how a security incident affects the IT enterprise, IT staffing, profit and new clients who are denied access.

For example, you can put a price tag on the impact on the technological enterprise by taking the annual IT budget plus the average uptime and dividing by the percentage of affected systems and the number of hours network resources were unavailable. Spernow's commentary, "Estimating Losses from an Infrastructure Compromise: A Generic Model for IT Security Staff," is still in development but should be available within two weeks at *www.gartner.com.* The report is free of charge to Gartner clients; nonclients may purchase it.

Amazon Taps Vendor For Supply-Chain App

Seattle-based Amazon.com Inc. has licensed the flagship software from Geodesic Systems Inc. to ensure uptime of its supply-chain management systems during times of peak volume. Chicago-based Geodesic claims that its software prevents system crashes by automatically resolving destructive application errors while an application is in use.

Dollar Gets Connected

Goodlettsville, Tenn.-based retailer Dollar General Corp. has selected Spacenet Inc. to provide a private satellite communications network connecting its corporate headquarters and remote locations. Dollar General will use McLean, Va.-based Spacenet's Skystar Advantage network for IP-based store polling and for inventory management.

Insurer Shifts to Digital Signatures

Minneapolis-based Old Republic National Title Insurance Co. will deploy Communication Intelligence Corp.'s Sign-it digital signature software for its electronic title-processing applications. The Redwood Shores, Calif.-based firm's software will allow Old Republic to capture a digital version of customers' handwritten signatures on insurance documents, which is a step toward paperless processing.

Hotel Wires Internet Reservation System

Las Vegas-based MGM Mirage Inc. will implement McLean, Va.-based SynXis Corp.'s reservation system at 10 of its hotel properties to manage more than 22,000 guest rooms. The SynXis product lets MGM Mirage make real-time rate and availability changes for any property over the Internet and then have those changes show up in the reservation systems used by 300,000 travel agents worldwide. Consumers can reserve rooms directly through property Web sites, which will automatically feed into the MGM Mirage property management system, thus reducing manual data entry and labor costs.

New Data Center for Global Logistics Firm

CNF Inc., a global logistics management company, has completed construction of a 252,000-square-foot data center in Portland, Ore., which will house 850 IT workers currently located at various buildings in the area. The energy-efficient building features an energy-saving lighting system and a raised-floor air distribution system, eliminating the need for traditional ductwork. The building is expected to save $65,000 per year in energy costs.

TECHNOLOGY

SECURITY JOURNAL

Murphy's Law takes hold as security manager Vince Tuesday attempts to add a new Internet service provider to his company's infrastructure and upgrade the corporate firewall — all in one weekend. And he'll have to repeat much of the work soon, when he upgrades the routers at his firm. ▸ 52

HANDS ON

Laptop theft and its potential for compromising corporate data are well-known risks. Unfortunately, the tools available to prevent theft and protect data are generally awkward to use and a nuisance to carry. A new motion-sensing technology promises easier, more intuitive protection that doesn't inconvenience users. ▸ 54

TO CATCH A THIEF

Deceptive networks composed of "honeypot" decoy systems can lure internal or external bad guys into easily watched spaces. But some security experts wonder if they're worth a company's time. ▸ 58

QUICKSTUDY

OpenGL, an open-source library of graphics functions maintained by an industry consortium, provides a cross-platform specification for 3-D graphics and simplifies development work. ▸ 60

MORE

Emerging Companies..... 61
Skills Scope..... 62

JENNY ZEINER

HSN.COM'S SCOTT MITCHELL adds new servers to existing clusters instead of replacing older servers with more expensive models. "Solve the business [problem] and service the customer, rather than feeding the technology monster," he advises.

SCALING UP FOR E-COMMERCE GROWTH

HOW DO YOU CREATE AN E-COMMERCE ARCHITECTURE that can scale up to keep pace with rapid growth? You do it by dividing your Web systems into well-thought-out components so you can add capacity where it's needed without bringing down the entire structure, say users and analysts. Design big, but build small, manageable chunks of technology, they advise.

56

Product Quicktake

Spotlight on Candle for e-Business and MQSeries Management

ebizQ
the insider's guide to e-business integration
www.ebizQ.net

A Web site doesn't automatically deliver business value. The online initiative might not address the right goals or integrate effectively with back-end systems. Or it might be too labor-intensive, which drives up costs and reduces the return on investment (ROI). That's why ongoing management is critical to ensure that any online initiative delivers value.

Candle has recognized this need for management and developed a comprehensive management methodology for online initiatives supported by its set of management tools. The Candle management methodology addresses all aspects of the effort: needs assessment, objectives, optimization, integration, process automation, quality of service, business service level management and business/IT performance measurement.

The Candle methodology and available IBM-certified, expert MQSeries services help organizations with everything from defining goals for the online initiative to resolving key trade-offs regarding cost, availability and performance. Ultimately, Candle's management-driven approach helps organizations increase the value of their online initiatives and understand and manage their ROI.

Product Description

Candle reinforces its methodology and services with a wide range of software products. Candle's MQSeries management tools enable an organization to effectively manage and integrate online processes through the organization's back-end systems. CandleNet Command Center Management Pac for MQSeries includes CandleNet Command Center for MQSeries, CandleNet Command Center Configuration Manager for MQSeries and PQEdit.

• CandleNet Command Center for MQSeries monitors the organization's MQSeries environment and provides a thorough understanding of the performance of all MQ resources. It allows administrators to collect and analyze MQ-specific data through a single console, locate problems and bottlenecks across multiple nodes and integrate with other Candle systems management products to identify problems. The solution also solves performance and availability problems automatically. It ensures that connections are set up properly, messages are delivered, and alerts and automated responses are working as planned.

• CandleNet Command Center Configuration Manager for MQSeries enables the configuration of MQSeries on many platforms through a single control point, Candle's visual Configuration Manager workstation. It offers a topological view of the existing queue managers, the platforms they reside on and the connections between them. Through this graphical view, administrators ean define or change queues, queue managers and channels. Managers can create queues, deploy the environment and manage it as it grows and changes. It enables error-free definitions with cross-platform validation. In short, it simplifies the time-consuming tasks of MQ configuration definition and management, and centralizes configuration definition information.

• PQEdit moves applications from development to production by making it easier to create and test data. It lets the user populate, manipulate and view the data through an easy-to-use interface. For example, it allows a manager to view both the message descriptor and the message data, and it presents message data in either hex or alphanumeric format, eliminating the chore of having to plow through obscure hex data to locate what managers want to know. Similarly, the tool's spreadsheet-style format organizes the message data into application-defined fields, allowing managers to quickly identify problem areas.

• CandleNet Command Center for MQSeries Integrator, the newest member of Candle's suite of solutions for MQSeries, manages IBM's widely used MQSeries Integrator (MQSI) to ensure maximum availability and performance. It provides the information necessary to understand MQ broker configurations and determine proper broker connections and sizing. It tracks key statistics about MQ publish/subscribe to ensure accuracy and helps detect and correct problems in the broker or message flow. It also enables managers to define actions for fast, automated problem resolution and improved productivity. Cross-platform, it manages and supports MQSI on Windows NT and 2000, AIX and Solaris.

Candle understands that technology alone — no matter how good — does not provide the complete solution for e-business. Rather, it is Candle's management technology, as represented by its MQSeries management tools, combined with its methodology and services that, ultimately, will promote a successful e-business initiative and deliver measurable business value.

Candle Corp. *at a glance*

Products: CandleNet Command Center™ Management Pac for MQSeries (CandleNet Command Center™ for MQSeries, CandleNet Command Center™ Configuration Manager for MQSeries and PQEdit®), CandleNet Command Center™ for MQSeries Integrator
Product Type: Development, deployment and management

Address: 201 N. Douglas Street
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Phone: (310) 535-3600
Fax: (310) 727-4287
Web Site: www.candle.com

Founded: 1976
Ownership: Private

Total Employees: 1,600
Total Employees in Professional Services: 600
Total Employees in R&D: 400
Number of Customers: 5,000
Total Company Revenue: More than $340 million annually

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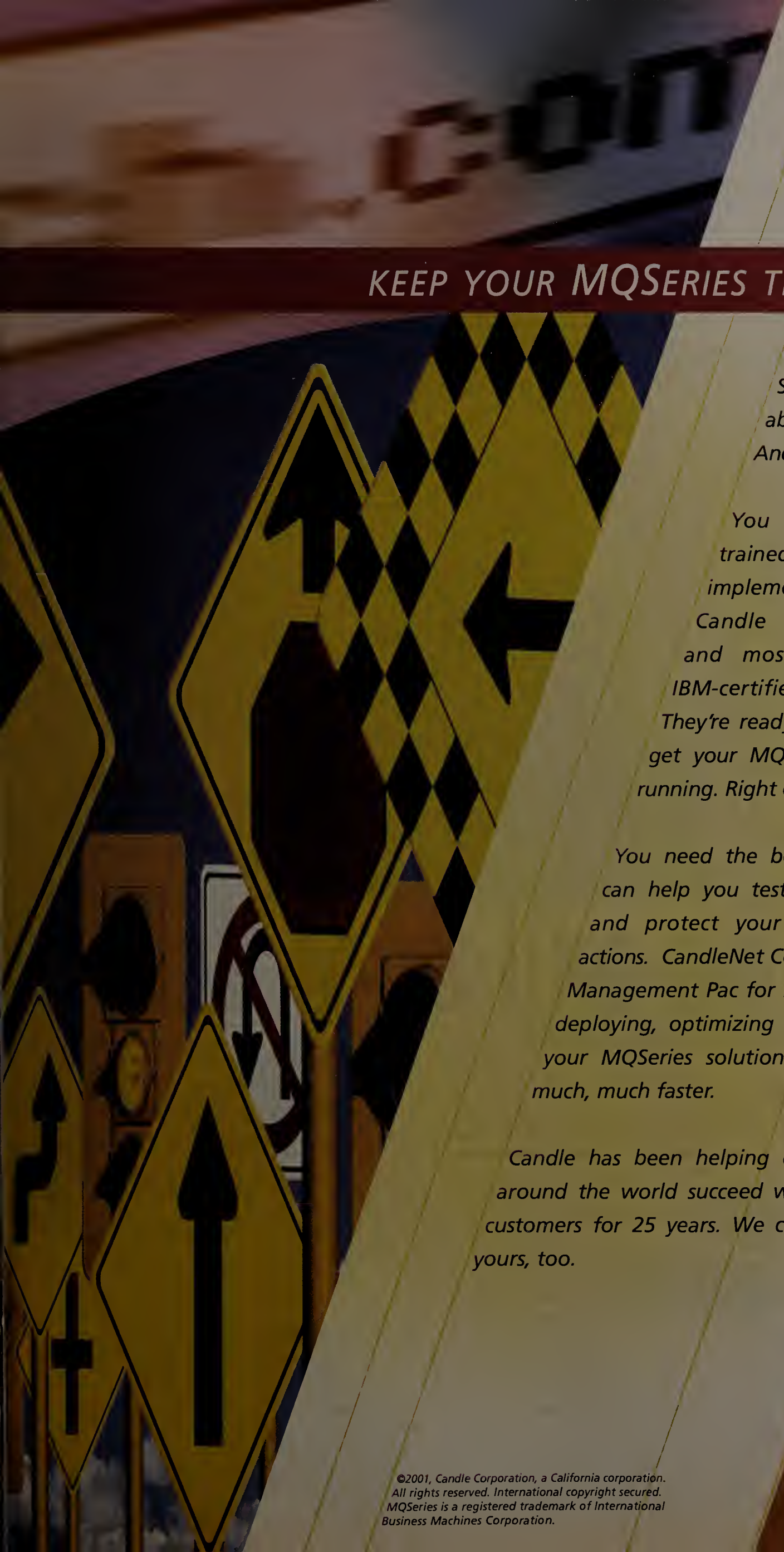

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!Candle

eBusiness at the speed of light

Visa Customers Reap Benefits of IP Network

Home-built payment-processing network offers broader access, less downtime

BY LUCAS MEARIAN

AS CHIEF technology officer at Visa U.S.A. Inc., which handles 35 billion online transactions annually, Scott Thompson is pummeled with pitches about new networked storage technology that promises to reduce workload and bring a higher return on investment.

Thompson has a simple rule of thumb: "There just isn't anything we can buy off the shelf to fit Visa's needs."

Last fall, Foster City, Calif.-based Visa launched its home-built expanded payment-processing network, Direct Exchange, which serves 14,000 U.S. financial institutions and their cardholders. Thompson chose a networked storage infrastructure based on Internet Protocol, allowing banks to give their customers access to their funds anytime, anywhere, with any device through the Internet.

In a matter of months, Direct Exchange, which connects to Visa's original payment network, VisaNet, has grown into the largest private financial payment network in the world. By the time Visa connects all of its 14,000 member banks to Direct Exchange in 2004, it will be handling more than $1 trillion in transactions annually, Thompson said.

Increased Capacity

William Hurley, an analyst at The Yankee Group in Boston, said the technology Visa is using is significant to the banking industry because it addresses the universal problem of capturing a high number of transactions for processing and storing. "If they're fully doing it over an IP network, they're definitely way ahead of the crowd in the financial community," Hurley said.

Direct Exchange has enabled Visa to increase its processing capacity from 4,000 transactions per second to 10,000 per second over its IP network. The average response time to a cardholder's request is 2 seconds, according to Thompson.

When a cardholder makes a purchase on the Internet, the information goes through two synchronized data-processing centers, one in McLean, Va., and one in San Mateo, Calif. Linking those centers in near real time has Thompson and his team "load-balancing all day long between the two."

Not only is the mirroring technique good for disaster recovery, cutting restoration time from 5 minutes to a split second, but it also ensures that Visa cardholders' information is always current. This helps cut down on fraud, since Visa can quickly notify banks when it suspects theft.

So far, network downtime has been zero, said Thompson.

He said he attributes much of the success to "meticulous, deliberate planning" and having the Rolls Royce of hardware, software and connectivity devices. Visa's payment processing network is powered by EMC Corp.'s Enterprise Storage Network, which includes Symmetrix storage arrays, Connectrix switches and Sun Solaris servers. The network also uses Oracle Corp. databases and routers from Cisco Systems Inc.

"That's one of the biggest fears: making sure the customer is confident that Visa's network is safe and there's no fraud involved," said Phil Faulkner, Hopkinton, Mass.-based EMC's financial services group manager. "That's a big return on investment."

Backup time at the data center was also reduced from between 10 and 15 minutes to 2 to 3 seconds using the IP network — a further return on investment of $2 million to $3 million dollars per backup cycle, Faulkner said.

Thompson insisted that he doesn't "attempt to go way off the edge," in terms of the newest, most leading-edge technology. "We pick tools and technology that works today," he said, "and that's why it works in our system."

SCOTT THOMPSON, CTO at Visa U.S.A., says he chooses tools carefully. Since its launch last fall, Visa's Direct Exchange has grown into the largest private financial payment network in the world.

IBM Ships OS to Support Usage-Based Pricing Model

Aims for reduced cost, easier use

BY JAIKUMAR VIJAYAN

IBM's rollout of its z/OS mainframe software last week provides a crucial foundation for building the kind of usage-based license models businesses have been demanding for a long time, users and analysts said.

The company introduced z/OS last fall along with its z900 line of mainframe hardware. Z/OS is IBM's first 64-bit mainframe operating system and includes new capabilities designed to make it easier and less expensive to run mainframes.

The most significant of these, from a user perspective, is z/OS's support of license manager technology for monitoring and measuring mainframe software usage. IBM is expected to ship the license manager in the fall. The company will then be able to charge users for software based on actual use, in much the same way utility companies charge their customers.

Users have long said that this kind of a model is far more equitable than current capacity-based licenses that are based on system size, where the larger a system is, the more users pay for the software, regardless of actual use.

"The license manager facility will allow users to substantially reduce the costs of running IBM and third-party [mainframe] software," said Chuck Bram, a principal consultant at eFunds Inc., a Milwaukee-based online financial services firm and an IBM mainframe user.

Z/OS should help tremendously in addressing the software pricing issue mainframe users have complained about, said Ed Cowger, an analyst at Stamford, Conn.-based Gartner Inc.'s Datapro unit. But a lot depends on the support that software vendors such as Computer Associates International Inc. in Islandia, N.Y., and BMC Software Inc. in Houston lend to the new pricing models, Cowger added. Such vendors have traditionally dragged their feet when implementing new pricing models, he said.

"Right now, the jury is out on whether they will support it on the z/OS," Cowger said.

Key among the other features available on z/OS is the Intelligent Resource Director, which makes the z900 capable of dynamically shifting processor power within the server and network to accommodate sharply fluctuating workloads. Using that capability, users can instruct the operating system to assign additional resources such as processors and memory to certain applications.

Z/OS also comes with security enhancements. For instance, for the first time, it lets users define and build their own cryptography functions.

Bigger and Better

IBM's 64-bit z/OS features:

- **Intelligent Resource Director:** Allows dynamic shifting of processor power within the server and within the network according to priorities set by users.
- **Enhanced security:** Allows users to define and build their own cryptography functions.
- **Easy setup:** Includes Web-based wizard technology.

With any other IDS, it can all look like an attack.

Intrusion.com SecureNet Pro™ network intrusion detection system is fast and accurate – so you can find the *real* threat!

INTRUSION.COM SecureNet Pro is the first intrusion detection system that combines the speed to handle intense network traffic with the accuracy to make the information you collect valuable.

SecureNet Pro delivers a peerless balance of speed and accuracy by combining fast string matching with accurate context analysis. And unlike other intrusion detection systems, SecureNet Pro signatures are totally extensible. You can even choose which signatures are string-matched and which are analyzed in context, tailoring the system to the unique attributes of your network traffic.

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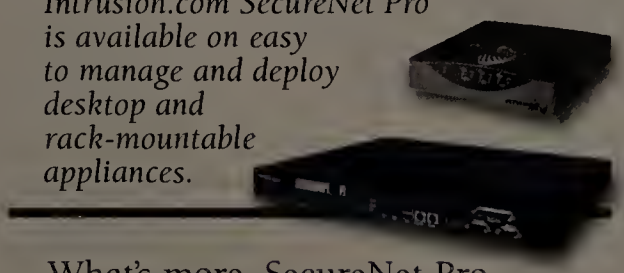

What's more, SecureNet Pro eliminates redundant signature analysis with Shared Decision Logic, and cuts packet handling by 33%. That means fewer dropped packets and 100% attack recognition* even on saturated 10/100Mbs networks.

The bottom line? Fewer false positives. More accurate information. More visibility into your network. And better security. Isn't that what intrusion detection is all about?

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* Attack recognition based on the nearly 400 default attack signatures using context analysis with randomly sized, synthetic traffic.

Weekend Wasted as Firewall Upgrade Flames

The devil's in the details, Vince finds, as an after-hours infrastructure upgrade goes south

BY VINCE TUESDAY

I SPENT MY WEEKEND working with the network team, the Unix systems administrators and some external consultants to try to add a second Internet service provider (ISP) to our infrastructure and upgrade our outer firewall.

Our Internet connections have grown into a critical part of our business processes, with customers in every time zone. There's no good time for an outage. We're even being asked to approve delivery of critical information over the Internet.

SECURITY MANAGER'S JOURNAL

We can protect the integrity and confidentiality of such files reasonably well using high-grade cryptography, but it's difficult to explain to users that the Internet's availability is beyond our control.

Adding an ISP should decrease the risk of an outage, but it will do little if there's a domain name system or routing problem elsewhere in the Internet.

We like to think big, so we got an autonomous system number and a second provider. Luckily, we went online early, so we have a large IP address space.

Moving from a single provider to multiple providers isn't simple because local systems have to decide which Internet provider to use for each destination and keep updating this information in response to any changes in the Internet.

Fun With Firewalls

With the risk of failure at the ISP reduced, it was also time to replace the single point of failure in the firewall infrastructure, and therefore we had purchased and prepared to deploy Atlanta-based Stonesoft Corp.'s Stonebeat for Check Point Software Technologies Ltd.'s Firewall-1 firewall. Stonebeat lets us recover from a firewall failure by switching over to another one.

The default Check Point rule set is somewhat rigid: If you want to allow your internal staff to be able to extend ping and traceroute functions through the firewall, you have to allow Internet Control Message Protocol replies from the whole Internet.

That sounds reasonable, but it leaves you vulnerable to smurf attacks and the like.

Frustratingly, the firewall is capable of supporting what's called "stateful" inspection of ping and traceroute attempts. This means it can keep track of outgoing requests and allow only the corresponding replies back in. You'd think Check Point would use this as a selling point, but it doesn't enable the function within the firewall's normal code.

A few years ago, your only hope would have been to understand Check Point's Inspect scripting code and write your own fix. However, the Internet is a wonderful place, so you can find such code already written online (see links at right).

While we were checking the fix, we managed without the ability to ping, but we were ready to deploy and double our Internet bandwidth, reduce the chance that a minor failure would disable our Internet connection and become a proper peering network. As a peering point, we become a proper, albeit minor, member of the Internet rather than just an end user.

Or at least we would have been if the network component had worked. When we rolled out the change, the large number of Border Gateway Protocol routes kept overfilling the routers. The Internet has certainly grown. There are now more than 90,000 routes to be stored, and our routers don't have enough memory for that.

A weekend down the drain, a day of the consultants wasted. Of course, we'll have to try it all over again once the routers are upgraded, so another weekend will be sacrificed on the altar of keeping my organization secure.

It would be less annoying if our ISP and Cisco Systems Inc. hadn't told us that the specification would be fine.

In my first column, I explained that I'd been asked to provide a secure e-mail connection to board members at remote companies. Internet e-mail enjoys the same level of protection as a postcard: Anyone involved in delivery can read it, change it or pretend it came from someone else.

Our long-term strategy is to use S/MIME with our Microsoft Exchange Server, but first we need to widely deploy Windows 2000 so that we can store user encryption keys within the Active Directory. In the interim, we deploy point solutions to particular requirements.

There are many ways to allow users to exchange information, protected from prying eyes. Although encrypted e-mail solves a lot of problems, it also introduces other risks.

First, we scan all e-mail within the servers and at the gateway for viruses. If messages are encrypted, they can't be checked. This increases our risk of virus infection. Our network-based intrusion detection system is also blind to attacks within the e-mails.

Encrypted E-Mail Danger

These shrink in comparison with the vulnerabilities that an insider can exploit with encrypted e-mails. They can use the encrypted mail to leak critical information or send abusive e-mails.

If users encrypt all their content and then lose the key, we can't recover the data for them. A malicious user might blackmail us by encrypting our critical data and demanding payment to provide the key. Normally, we'd be able to go to backups, but if all the copies are encrypted, then we're out of luck.

We could store copies of all the keys centrally, but the central store becomes a tempting target for attackers and introduces a high risk that all our keys could be hacked.

There are standards for key exchange and encrypted e-mail, but there are so many to choose from and no obvious manner to agree on them with the organizations with which we need to exchange e-mail. Our board members are already using PGP encryption from Network Associates Inc., so we have to find something that works with that.

Right now, we're looking at London-based GFI Software Ltd.'s Mail Essentials for Exchange/SMTP. It should provide transparent encryption at an infrastructure level. We hope to manually exchange a single key with each organization and then encrypt all user e-mail to that organization. It shouldn't require any change to user desktops, and we won't have to train the users.

But just as we arranged a demonstration for our messaging team, we were given another requirement for secure e-mail. One of our regulators needs to exchange confidential fraud information and has chosen a product that doesn't work with S/MIME or PGP.

So in addition to a standard that we can't deploy until we upgrade to Windows 2000, we'll have two nonstandard e-mail encryption systems spreading through our environment. Does anyone know a way to let S/MIME and PGP translate between each other? ◗

THISWEEK'SGLOSSARY

Autonomous system numbers (ASN): The Internet comprises groups of IP networks, called autonomous systems (AS), that use exterior routing protocols to communicate among themselves. Each AS has an ASN that identifies it and allows such routing to take place.

Border Gateway Protocol (BGP): An exterior gateway protocol defined in the Network Working Group's request for comments (RFC) 1267 and RFC 1268 for passing routing information.

Internet Control Message Protocol (ICMP): Part of IP, the ICMP is a network routing protocol that allows a gateway or destination host to communicate back to the source host to report errors and other events.

Smurf attack: An ICMP-based denial-of-service attack where a request for a ping reply is sent to the broadcast address on a network. The hacker spoofs the source address as that of the targeted host. Every device on the network then replies to the spoofed address, magnifying the volume of the traffic and overwhelming the host.

Secure Multipurpose Internet Mail Extensions (S/MIME): A specification for secure e-mail, S/MIME adds authentication (using digital signatures) and privacy (using encryption) to e-mail messages.

LINKS:

http://people.netscape.com/shadow/work/inspect/fw1_icmp.html: Written by Bill Burns, this code lets internal hosts "statefully" execute ping and traceroute functions from an internal host to Internet hosts through a Check Point Firewall-1 firewall. The code is written in Check Point's Inspect scripting language.

■ This week's journal is written by a real security manager, "Vince Tuesday," whose name and employer have been disguised for obvious reasons. It's posted weekly at *www.computerworld.com* to help you and our security manager better solve security problems. Contact him at vince.tuesday@hushmail.com or head to the Security Manager's Journal interactive forum.

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Blowing the Whistle on Laptop Theft

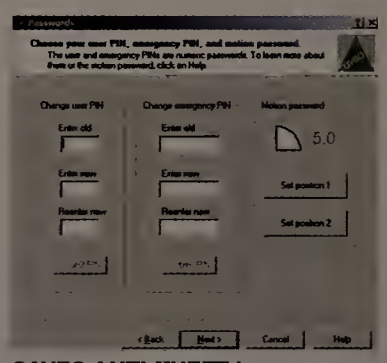
A new motion-sensing technology that can be built into or added onto laptops will help protect both computers and their data from theft. By Russell Kay

WE'VE ALL heard the horror stories about executives' laptops being stolen from airports, cars or park benches often enough to know that it is indeed a serious problem. According to a 1999 survey of large corporations and government agencies conducted by the Computer Security Institute, a San Francisco-based association of security and network professionals, 57% of respondents reported losses resulting from laptop theft.

Replacing a laptop costs a relatively small amount of money, but the cost of compromising or revealing corporate data on that laptop can be significant, and a stolen laptop may grant access to a company's internal networks or virtual private networks.

While there are lots of antitheft devices on the market [Exec Tech, Feb. 7, 2000], they all suffer from one major flaw: They require the user to do something unnatural and inconvenient, like locking the laptop to a table or waiting-room chair with a rather bulky cable, then unlocking it when moving to another location. IT managers know that such security measures are important, so they buy the locks and cables. But they also know that most users will stop using them after the first few times — if they ever use them at all.

Caveo Technology LLC has



CAVEO ANTI-THEFT lets users set typed-in and motion passwords.

a different answer, and it's very cool. This may be the first laptop antitheft technology that will actually work in the real world. The Cambridge, Mass.-based company's Caveo Anti-Theft device incorporates a solid-state motion-sensor memory, sound-producing unit and microcontroller, along with two levels of password protection augmented by a "motion password."

Proprietary software analyzes the computer's motion history and, based on user-selected parameters, determines if the unit is being carried beyond its normal perimeter — that is, if a theft is under way.

When the system is armed, any movement will trigger a brief chirping sound from the device; the more it's moved, the more frequent and insistent the sound becomes, until a full-blown, continuous alarm is activated.

This sound is only a secondary deterrent to theft; more powerful measures are at work protecting the data. When the alarm goes off, the system triggers a blue screen, shuts down and reboots. When it comes back up, a dialog box asks for a 16-digit emergency password. (This normally occurs when the BIOS is first checked during the boot process and in all cases before the operating system is available.) Without the correct password, this laptop is a dead brick.

But even if the computer is unusable, its data could still be at risk because a thief could remove the hard drive and then install and read it on another computer, right? No, because files are encrypted, and the keys needed to read them are stored on the antitheft device's own memory, not in the computer's memory or on disk.

Caveo Anti-Theft is always on, even if the computer is off. It can be built into a laptop, using a small daughterboard (computer makers exploring this option include Fujitsu PC Corp., Dell Computer Corp. and Compaq Computer Corp.), or incorporated into a PC card that can be used with any laptop.

The unit isn't susceptible to power interruptions; if the laptop's battery is removed, the unit goes into "silent" alarm mode. The PC card version will include a built-in battery that's recharged by the laptop.

To arm or disarm the system or make configuration changes, you can either click on a system tray icon and enter a four-digit password, or use the motion password. This involves moving the machine into a particular position (say, lifting one side up at a 30-degree angle) and holding it until the system beeps, then moving the machine to a second position (say, flat on a table) until a second sound is heard. The two positions are taught to the system and can be changed easily. The motion password makes it convenient for users to disarm the system when picking it up and to rearm it when they've reached their next destination.

I used a Fujitsu LifeBook E Series laptop internally equipped with a beta version of Caveo Anti-Theft. I set it up with assistance from Caveo CEO David Lee, and I learned just how individual the motion password can be. He watched me reset the motion password, which I could then use easily, but he had difficulty replicating the same two positions. The motion password can also be used to turn off the alarm after it's been triggered.

Caveo Anti-Theft is the company's first product and should be available within the next couple of months. How much it will add to the cost of a laptop isn't clear, but the daughterboard costs computer makers less than $15. Caveo expects the PC card to retail at less than $100; the higher price is due to its battery, its bigger sound-producing unit, and the PC card interface and packaging. For more information, visit *www.caveo. com.*

HOW'D THEY DO THAT?

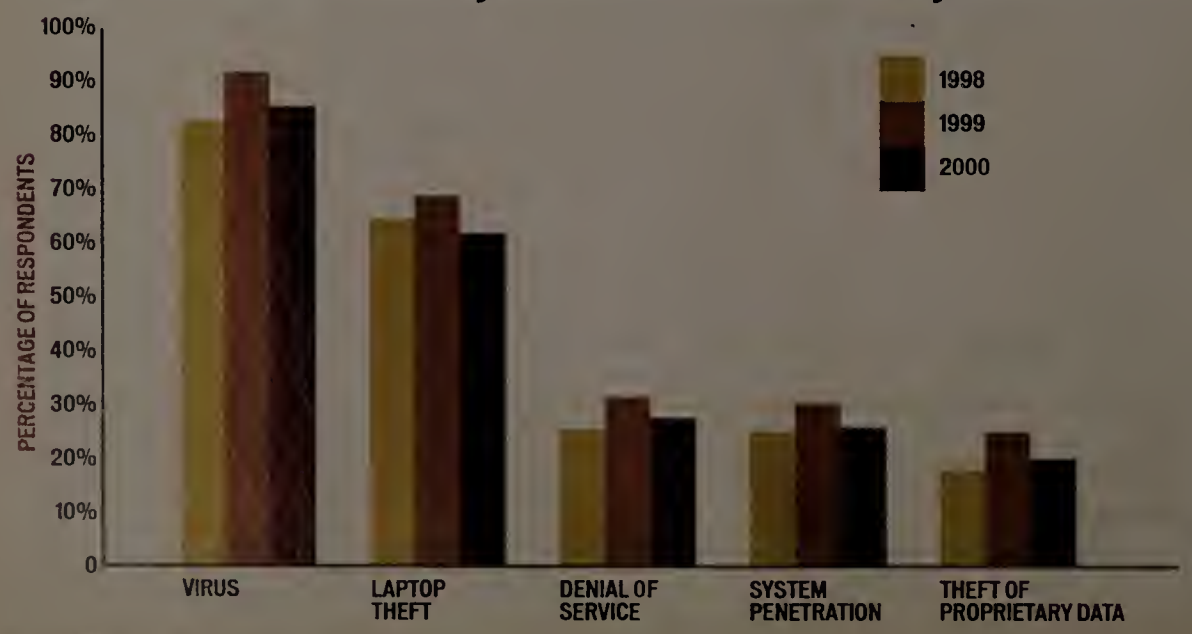
The tiny tilt-motion sensor that makes Caveo Anti-Theft work is the ADXL-202E, a low-power, low-cost, solid-state accelerometer made by Analog Devices Inc. in Norwood, Mass. The device stems from the same technology that's used to trigger the inflation of air bags in automobiles.

The heart of the sensor is a micromachined "beam" of polysilicon (400 microns on a side by 3 microns thick) that's attached to eight serpentine "springs" created from the same polysilicon and suspended just 1.6 microns above its substrate. The beam can move a very short distance on its springs. Acceleration forces of +/-2g can be measured using differential capacitive sensing techniques. Acceleration can be measured at a resolution of just two-thousandths of the force of gravity, at 60 Hz, according to Analog Devices.

David Lee, CEO of Caveo, formerly consulted for Analog Devices and helped develop the sensor, which is now at the heart of his new product.

– Russell Kay

Most Common Security Breaches Committed by Outsiders



SOURCE: COMPUTER SECURITY INSTITUTE "COMPUTER SECURITY ISSUES AND TRENDS 2000" SF FBI COMPUTER CRIME AND SECURITY INSTITUTE SAN FRANCISCO (*WWW GOSCI COM*)

Learn from the Top IT Leaders this May...

AGENDA INSIDE

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May 20-22, 2001
Westin Mission Hills Resort
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Panels and sessions will address:

- **ROI**
  The New ROI: Tracking Technology Payback in a Tough Economy
- **Wireless**
  Wireless Warriors and the Challenge of M-Commerce
- **Globalization**
  IT's Mission Impossible: Globalization and E-Business
- **Security & Privacy**
  The Heavy Hand of Uncle Sam in Security and Privacy Protection
- **Connecting Your Customer**
  The Next Wave of E-Commerce: Connecting Your Customer Channels

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Laura Olle **Marge Connelly**
Co-CIOs
Capital One Financial

Harvey Seegers
President & CEO
GE Global eXchange Services

Irene Dec
VP International Investments
Prudential Insurance

Patty Seybold
CEO
Patricia Seybold Group & Author of *Customers.com*

Doug Busch
CIO
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Chet Huber
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Eddie Schwartz
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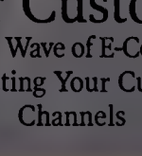
Globalization
IT's Mission Impossible:
Globalization and E-Business

Security & Privacy
The Heavy Hand of
Uncle Sam in Security and
Privacy Protection

Connecting Your Customer
The Next Wave of E-Commerce:
Connecting Your Customer
Channels

CONFERENCE CHAIR



Maryfran Johnson
Editor-in-Chief, Computerworld

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CONFERENCE AGENDA

SUNDAY, MAY 20

12:00 - 5:00pm
GOLF TOURNAMENT FOR
PRE-REGISTERED ATTENDEES

7:00 - 8:30pm
PRE-CONFERENCE EVENING
NETWORKING RECEPTION
Sponsored by Cognizant Technology Solutions

MONDAY, MAY 21

7:00 - 8:00am
BUFFET BREAKFAST
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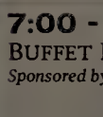
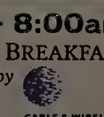
8:00am

WELCOME & OPENING
REMARKS
Alan Guibord
CEO, Computerworld
Maryfran Johnson
Editor-in-Chief, Computerworld

8:15am

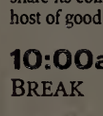
OPENING KEYNOTE:
GOING DIGITAL THE OLD-FASHIONED WAY: GM'S LEVEL-HEADED APPROACH TO E-BUSINESS
Ralph Szygenda, CIO, General Motors

9:00am
PANEL 1:
IT'S MISSION IMPOSSIBLE:
GLOBALIZATION AND E-BUSINESS
Moderator: Sarwar Kashmiri, CEO, EbizChronicles.com
Panelists:
- *Peter Sole, CEO, The Research Board*
- *Barbra Cooper, VP and CIO, Toyota Motor Sales USA*
- *Bob DeRodes, CIO, Delta Air Lines and CEO, Delta Technology*

Ready or not, the Web is making the globalization of business a reality. But pursuing a global strategy means more for IT than creating a worldwide network infrastructure, setting up foreign distribution or hiring IT talent abroad. Your organization can count on running into a formidable set of barriers: everything from cultural, political and regulatory roadblocks online, to troubles with technology infrastructure, privacy and security concerns, and hiring restrictions. The good news is that an increasing number of countries are racing to make legal and infrastructure improvements to attract foreign businesses. So how does an IT Leader go about getting a grip on strategy to support the enterprise's global business objectives? Our panel will share its collective international experience to send you off with a host of good ideas along with an action-item list.

10:00am
BREAK

10:15am



OLD RULES, NEW GAME: BUILDING PRUDENTIAL'S GLOBAL E-STRATEGY
Irene Dec, VP International Investments, Prudential Insurance

11:00am
PANEL 2:
THE NEXT WAVE OF E-COMMERCE:
CONNECTING YOUR CUSTOMER CHANNELS
Moderator: Kevin Fogarty, Business & Technology Editor, Computerworld
Panelists: To be announced

The customer economy has arrived with a vengeance, trailing massive numbers of Customer Relationship Management (CRM) systems in its wake. But integrating disparate CRM applications and re-architecting workflow to get that mythical 360-degree view of the customer remains a major hurdle for IT. Online and offline, companies are investing in ways to personalize customer-care technologies such as voice over IP and real-time chat. But are you wasting time fretting about customer relationships when you should be managing customer value? Are you tying all of your customer channels together — in realtime — to leverage existing investments in front-office and legacy applications? This panel will bring together diverse industry views on a topic that ultimately affects every company's bottom line.

12:00pm
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Conference Agenda

1:30pm

Afternoon Keynote:
Surviving the Revolution and Thriving in the Customer Economy

Patricia Seybold, CEO, Patricia Seybold Group and Author of "Customers.com" and "The Customer Revolution"

2:15pm

Panel 3:
Wireless Warriors and the Challenge of M-Commerce

Moderator: Bob Brewin, Senior Editor, Wireless Technology, Computerworld

Panelists:
- *John Puckett, VP & General Manager, Wireless and Internet Technologies, Polaroid*
- *Patrick Wise, VP of E-commerce, Landstar System*
- *Scott Heintzeman, CIO, Carlson Hospitality Worldwide*

Few technologies hold as much promise — or pose as many perils — as wireless networks and mobile computing. From privacy rules and regulations to the complex relationships between content providers, aggregators and service providers, IT Leaders face an array of business and technology challenges in building a reliable wireless infrastructure. What are the best practices in deploying mobile commerce applications that resolve security concerns and location-service controversies? Which applications make the most sense for wireless LANs? How do you choose an architecture that works well for your user base? How solid is the Wireless Application Protocol (WAP) standard for unifying handheld devices and wireless networks? Our panelists will examine these core questions through the lens of their own experience, coming up with some practical recommendations for the next wave of wireless warriors.

3:00pm

Break

3:10pm

Closing Keynote:
The Ability to Risk Innovations

Chet Huber, President, OnStar

3:55pm

Closing Remarks

4:00pm - 5:30pm

Sponsor Breakout Sessions

5:30pm - 8:30pm

Cocktail/Networking Reception
Expo & Buffet Dinner

Tuesday, May 22

7:00 - 8:00am

Buffet Breakfast

Sponsored by symbol

8:00am

Opening Remarks

Alan Guibord & Maryfran Johnson

8:15am

Opening Keynote:
IT Leadership in a Changing Economy

Doug Busch, CIO, Intel

9:00am

Panel 4:
The Heavy Hand of Uncle Sam in Online Security and Privacy Protection

Moderator: Alan Paller, Research Director, SANS Institute

Panelists:
- *Kim D. Ross, CIO, Nielsen Media Research*
- *Eugene Schultz, Principal Engineer, University of California at Berkeley*
- *More panelists to be announced*

Wherever technology touches its citizens these days, the U.S. government seems to be there with new regulations or proposed legislation. Legitimate concerns about data privacy — particularly with medical records — are further politicizing these hot-button areas where IT can clearly be held responsible. The high-tech sector remains split about how to approach online privacy guarantees in the U.S., while the European Union has already adopted tough data protection laws that multinational companies must follow. What will these diverging sets of international privacy laws mean for your company? On the flip-side of the privacy coin is security. What role should the government play in helping companies protect their systems from threats? What concerns do you have about government involvement? Our expert panel will talk about strategies for keeping a step ahead of Uncle Sam in this uncertain, potentially explosive, regulatory environment.

10:00am

Break

10:15am

Privacy - It's Not Just a Compliance Issue

Eddie Schwartz, VP of Strategy, Guardent (former Chief Security Officer, Nationwide)

11:15am

Town Hall Meeting:
"Ask the Career Experts"

Maryfran Johnson

12:00pm

Expo & Buffet Luncheon

1:30pm

Afternoon Keynote:
The Best of Both Worlds: The Synergy Between Operations and IT

Laura Olle & Marge Connelly, Co-CIOs, Capital One Financial

2:15pm

Panel 5:
The New ROI: Tracking Technology Payback in a Tough Economy

Moderator: Julia King, Executive Editor, ComputerworldROI

Panelists:
- *Jon Carrow, Director of Global IT Sourcing, American Home Products*
- *Sateesh Lele, Vice President, CIO, Frito-Lay, North America*
- *Steve Schuckenbrock, COO, The Feld Group Consulting*
- *Robert A. Plante, Executive V.P. and CIO, The CIT Group*
- *Cathy Hotka, CIO, National Retail Federation*

The IT spending spree of the past few years is over. The Y2K glitches are fixed. The massive Enterprise Resource Planning (ERP) systems are installed. The build-out of e-business is ongoing, but the pace has slowed with the downturn of dot-com fortunes. But the intersection of IT and business is still a very busy place. Now is the time to recession-proof your IT organization, generate some new ideas and find new revenue streams. How is your company using the Internet to streamline processes within the organization and deal more effectively with your supply chain? Are you creating online relationships with partners and competitors alike? Where can you use IT to create new products and services? Getting focused on the real business opportunities and the ROI behind technology expenditures is the mission of this panel.

3:15pm

Break

3:25pm

Closing Keynote:
Essential Ingredients for B2B Marketplace Liquidity

Harvey Seegers, President/CEO, GE Global eXchange Services

3:55pm

Closing Remarks

Alan Guibord & Maryfran Johnson

4:00 - 5:30pm

Sponsor Breakout Sessions

7:00pm

Cocktail Reception, Entertainment and Gala Awards Dinner

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- ❑ Sun
- ❑ Other

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- ❑ $100 million - $999.9 million
- ❑ $10 million - $99.9 million
- ❑ $1 million – $9.9 million
- ❑ Less than $1 million
- ❑ None

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- ❑ Windows 2000
- ❑ Sun Solaris
- ❑ IBM AIX
- ❑ Hewlett-Packard UX
- ❑ Novell Netware
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Scaling Up For E-Commerce

A divide-and-conquer design strategy helps ensure that your e-commerce architecture will grow with the business.

By Robert L. Scheier

HOW DO YOU eat an elephant? One bite at a time. You create a scalable Web architecture in the same way: by dividing your Web systems into well-thought-out components so you can add capacity where needed without bringing down the entire structure, say users and analysts.

"Design big and build small," says Larry Kinder, senior vice president and CIO at Cendant Corp., a financial and travel services company in New York. That means "functionally isolating" the databases, business rules and interfaces where applications meet, so components can be modified or scaled up as needed, he says.

For example, Kinder says, "we literally built a wall around our mainframe applications, our old legacy stuff, and as we build new applications, we can turn off old functionality on the mainframe" and transfer those functions to more easily scalable, smaller servers.

Scott Mitchell, chief technology officer at HSN.com, the online subsidiary of Home Shopping Network Inc. in St. Petersburg, Fla., wanted to be able to "scale out but not scale up," he says. "Rather than having to swap out a server and buy a more expensive server, I just wanted to be able to add a server to my [existing] cluster."

In the past year, Mitchell's server farm has grown from four to 10 dual-processor Web servers accessing two four-way database servers running Microsoft Corp.'s SQL Server 2000. Since 10 servers is about the limit on which he can comfortably perform load-balancing and data replication, Mitchell says that as traffic increases, he'll create new farms at new locations, which will give him "an infinite amount of scalability."

Some IT managers are addressing these scalability issues by dividing key systems into components, determining what those components should look like based on the needs of the business, and building the architecture out of those components on a "pay-as-you-go" basis.

The Component Mind-set

A component is simply a chunk of software that performs work or provides information within a wider application. A component could be the user interface on an order entry system, the rules for how and when to increase a customer's credit limit, or a data warehouse detailing every customer transaction conducted during the past five years.

According to several IT managers and analysts, to build a scalable Web architecture, managers should think of components not in terms of the software on which they're based but in terms of the services they provide.

During his tenure at Garden City, N.Y.-based Avis Group Holdings Inc., which Cendent acquired last month, Kinder says, "we needed to find a way to give our clients access to their data and to their accounts online," without having to connect the Web server to 50 legacy databases.

In this case, the core component was a data warehouse holding the crucial data and business rules that had been replicated from legacy databases. Whenever more users or applications needed the data and the business rules, Kinder could expand the data warehouse without having to significantly change the mainframe databases from which the warehouse drew its data.

EBlast Ventures LLC, a Chicago-based venture capital and professional services firm, created a reusable component in the form of a catalog engine. The catalog lists different types of children's soap with different toys inside each bar, says CTO Bruce Weiner.

"When I sell that on the Web, parents are going to want to select from a variety of different soaps and a variety of different toys," he says. "I don't know what combinations parents are going to want." But using San Jose-based BEA Systems Inc.'s WebLogic tools, says Weiner, "I can write a cataloging engine which lets me list all the pieces of soap and all the toys and the rules for putting them together and let the customer tell me how to put them together."

Creating these application components once and having them available for reuse in future applications is far less expensive than rebuilding the capabilities on every new e-commerce platform a business adopts and every legacy system a Web application must access.

But designing components correctly requires that they contain enough of the right business-critical details to be useful while being generic enough to be reused across applications.

Keys to E-Commerce Scalability: Three Success Stories

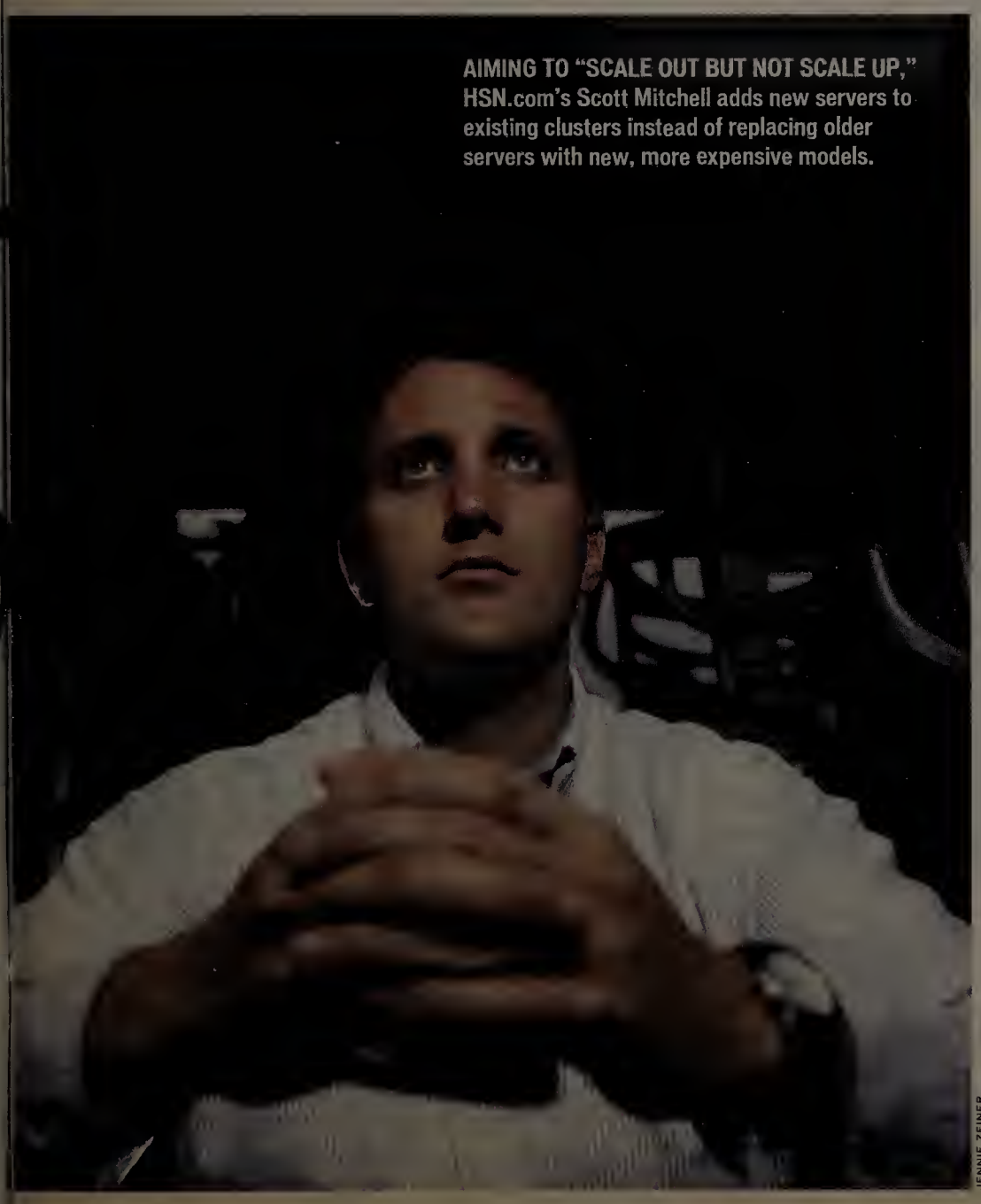
1 **COMPANY:** Avis Group Holdings
CHALLENGE: Web-enable mainframe systems without rewriting them.
STRATEGY: Find crucial data and business rules in current applications and build clean interfaces between them and Web applications.
TECHNOLOGY: Professional services from Rockville, Md.-based Merant PLC, as well as Merant's PVCS Version Manager and Micro Focus mainframe access and development tools.
ADVICE: "Design big and build small."
PAYOFF: Its new architectural strategy helped cut IT's budget by one-third and reduce mainframe maintenance staff from 19 to three.

2 **COMPANY:** HSN.com (Home Shopping Network)
CHALLENGE: Scale from 325,000 unique visitors in January 2000 to 2.3 million in December.
STRATEGY: Stick as closely as possible to a tiered architecture; keep to single vendors for server software and hardware, for maximum compatibility. Limit the number of servers to 10 per site to ease data management.
TECHNOLOGY: Compaq Computer Corp. Web and database servers; Microsoft SQL Server 2000 and Windows 2000 Advanced Server.
ADVICE: "Keep it simple, stupid."
PAYOFF: The three-tier model has helped HSN.com reuse software components and hold down costs. The company claims that the site was profitable within 90 days of the launch.

3 **COMPANY:** eBlast Ventures
CHALLENGE: Scale from one server to 50 servers and from 50MB to 9TB of managed data in one year.
STRATEGY: Follow a strict development process, and define and enforce strict rules for defining data so common functions can be used across applications.
TECHNOLOGY: The Rational Unified Process from Cupertino, Calif.-based Rational Software Corp.; tools from Rational such as Rational Rose for application modeling and Rational ClearCase for software configuration management; XML as a translation layer between mainframe and Web applications; BEA Systems's. WebLogic development and management tools
ADVICE: "By breaking your business into three layers, you can add hardware against each one" as needed.
PAYOFF: The project will allow the company to scale its IT architecture from one that supports a $20,000 to $30,000 business to one that supports a multimillion-dollar business "very seamlessly."

Some components, like those that handle credit card payments, can be defined in extreme detail, says Weiner. For example, for the transaction required to complete a credit card payment over the Web, he says, his developers used WebLogic "to define the rules on how to use that specific component" across multiple applications.

The steps needed to complete a credit card transaction are well known. But, says Weiner, in the cataloging system, it's impossible to know beforehand factors such as exactly how they'll be priced or displayed in the catalog. For applications like this one, the key is defining and enforcing very rigid rules about how each component is built. "I can write a catalog which handles an infinite number of SKUs, without knowing what is in each [SKU listing]," as long as each component in the catalog system treats each stock-keeping unit field the same way, such as requiring the same number of characters in the field, he says.



AIMING TO "SCALE OUT BUT NOT SCALE UP," HSN.com's Scott Mitchell adds new servers to existing clusters instead of replacing older servers with new, more expensive models.

JENNIE ZEINER

Another key is to properly split applications into tiers: often, one tier for the user interface, another for the application logic (business rules) and a third for the data.

Managing the Layers

The e-commerce applications that scale the best are those that have only the proper functions in each tier and require as little interaction as possible among the tiers, says John Steensen, CTO at Intira Corp., a Pleasanton, Calif.-based Web hosting firm. That way, it's relatively easy to add more processing power to the layer that's becoming overloaded as user demands increase.

If much of the business logic is written into the database, for example, "all of a sudden, you have a database which can't handle all the transactions being thrown at it from the application layer," says Steensen. That slows overall application performance and can obscure the real nature of the problem.

"By breaking your business into three layers, you can add hardware against each one" as needed, says Weiner.

Putting much of its business logic in the middle tier helped HSN.com reuse more of those middle-tier components as it scaled from 325,000 unique visitors in January last year to 2.3 million in December, says Mitchell.

For example, the company developed one component to deliver online coupons that "we developed once and used everywhere throughout our site," says Mitchell. "If we hadn't . . . we would have to rewrite [that] code in every page on our site."

Just about every company must link its Web applications to back-end inventory, accounting and billing systems. Often, as in the case of Avis, these systems are mainframe applications that weren't designed with three-tier architectures in mind, much less the Web, but are far too expensive to scrap and rewrite.

The answer, according to several Web architects, is what Weiner calls "wrappering" these older systems in a software layer such as XML that sits between the legacy application and the Web, allowing the two environments to communicate. This surround-and-conquer approach lets Weiner add more Web servers as needed that can cleanly access the existing mainframe application via XML.

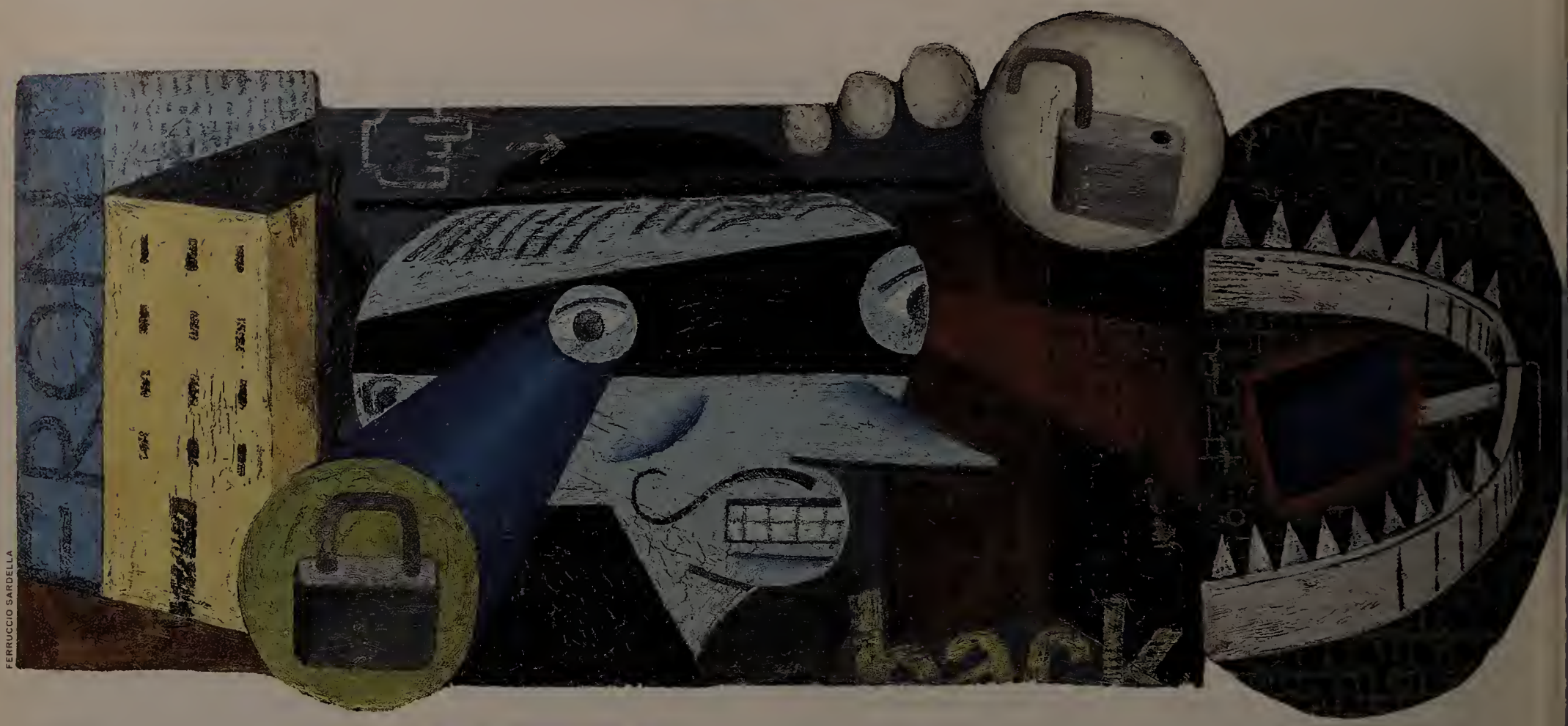
Doing this extra planning upfront adds costs that developers and business managers must weigh against the need to get new applications up and running quickly.

"I'm glad . . . we really locked into a data architecture" that supported Avis' eventual move to a data warehouse, but "it was tough," says Kinder. It cost an additional 10% to 15% per application to get information out of the companywide data warehouse than it would have to simply build another single-application stovepipe into a legacy database.

Successful Web architects take a pay-as-you-go approach. Every IT project has to produce a well-defined business benefit, says Kinder, as well as "build towards the target architecture, even in a small way."

Just as IT managers have learned the problems that come with incompatible stovepipe systems, they're also learning that a scalable Web architecture exists for only one reason: to make money. Or, as Mitchell says, "Keep it simple, stupid. Solve the business [problem] and service the customer, rather than feeding the technology monster." ◗

Scheier is a freelance writer in Boylston, Mass. Contact him at RScheier@charter.net.



FERRUCCIO SARDELLA

To Trap A Thief

Decoy systems called 'honeypots' pull hackers into networked trapdoors, but using them can be almost as dangerous, legally and technically, as not having them at all. By Mathew Schwartz

IF YOU WANT TO BREAK into a house, why spend time prying open the front door if the back door is wide open? Same goes when breaking into computer networks. Most networks and servers are set up with configuration errors that are well known to hackers, who can download free tools that will scan many different networks looking for those easy-open entry points. No genius-level code manipulation or high IQ is needed.

Your network administrators haven't had time to install the latest Microsoft Windows NT security patch yet? Great. A consultant left obvious root access passwords on the firewall he built for you? Even better.

Things get interesting, however, when a security administrator purposely leaves a back door open but hides a tripwire behind it. Now the security person knows when an intruder trips the wire and, with luck, the perpetrator can be caught or scared away before causing any damage.

That's the theory behind "honeypots," which are servers and network equipment designed to attract hackers into secure lockboxes rather than let them hack at the network proper. When criminals move in to exploit security flaws in a honeypot, silent alarms go off and network managers can block the intrusion, begin amassing evidence for use in court or even launch a counterattack.

There are two types of honeypots. Hardware-based honeypots are servers, switches or routers that have been partially disabled and made attractive with commonly known misconfigurations. They sit on the internal

network, serving no purpose but to look real to outsiders. The operating system of each box, however, has been subtly disabled with tweaks that prevent hackers from really taking it over or using it to launch new attacks on other servers. A honeypot is easy enough to build, but if an experienced cracker succeeds in compromising it, he could use it to launch other attacks.

A safer option might be to create an entire network of honeypots, such as the HoneyNet Project (*http://project.honeynet.org*). Lance Spitzner, a security consultant at Sun Microsystems Inc. in Chicago, runs the project with 30 other security professionals.

"We call it a 'honeynet' because it's not a single system," he says. It's actually a network of honeypots, full of real hardware, including Cisco switches and Windows NT, Linux and Solaris boxes, all partially disabled. Spitzner's goal is to learn from hacker attacks and share the information on the Web.

Software emulation honeypots, on the other hand, are elaborate deception programs that mimic real Linux or other servers and can run on machines as low-power as a 233-MHz PC. Since an intruder is just dancing with a software decoy, at no time does he come close to actually seizing control of the hardware, no matter what the fake prompts seem to indicate. Even if the hacker figures out that it's a software honeypot, the box on which it's running should be so secure or isolated that he couldn't do anything but leave anyway.

On the other hand, creating a simulation able to fool a master hacker isn't the kind of project most IT shops have the expertise to handle.

Art of Deception

More than any piece of equipment or software, the most important attribute of a honeypot is psychological: It has to look attractive and easy to break into, but not too easy. Otherwise, hackers will easily identify the honeypot and go after other servers on the same network. Linux is a good place to start, because there are easily downloadable tool kits for breaking into a Linux server. Spitzner says that on average, it takes only 72 hours for a hacker to begin scanning a new Linux installation on his HoneyNet.

It also helps to know the anatomy of an attack. Many hackers follow similar patterns: running an automated script that scans networks, breaks into systems, downloads tools and then notifies the hacker that a compromised system is ready for use. The downloaded tool kit gives hackers instant access to the compromised system and the ability to rewrite the kernel or use it for anything from launching denial-of-service attacks on other sites to compromising private company data.

After hackers compromised a Linux server on Spitzner's HoneyNet, for example, they tried to scan more than 500 systems in four hours. The hackers were stopped only by the firewall Spitzner erected specifically to keep the HoneyNet systems from serving as launching points that masked the real origin of an attack.

No honeypot, whether hardware or software, can catch every intrusion. "They're handy 'Oh, by the way' tools" but aren't meant to be used alone, says Drew Williams, director of intrusion detection at Houston-based security firm Intrusion.com Inc. "They should be considered as yet another module in a comprehensive security solution."

Even with honeypots on the network, hackers could easily attack a real server instead of a fake one, so relying too much on the attractiveness of the honeypot can leave the rest of the network relatively unprotected.

Some question whether using honeypots just invites disaster. "Keep in mind that you are playing with fire," says Spitzner. "Someone far more advanced than you may compromise your honeypot, leaving you open to attack."

Hardware-based honeypots should be isolated, running only the honeypot software, not e-mail servers or other software. Though the honeypot box is attached to the internal network, it shouldn't share or communicate with anything else on the network, in effect making it a virtual lockbox.

"The whole concept of a honeypot is that there should be no production traffic going to or from it. If there's any traffic, then you know it's been compromised," says Spitzner.

Other safety measures include making kernels nonrewritable or setting the machine to reboot whenever someone attempts to change its kernels, so the changes don't take effect.

SNet Systems Corp. in Tampa, Fla., sells modified versions of Linux and FreeBSD kernels designed to resist hackers. Barry Schlossberg, security adviser at sNet, says fooling hackers with neutered kernels buys precious time.

"Why did the machine reboot when they tried to put their root kit on it? It baffles them and gives us 30 to 60 minutes to try and identify who and what's coming at the appliance," he says.

For do-it-yourself hardware honeypot builders, Spitzner recommends a product called Mantrap from Recourse Technologies Inc. in Redwood City, Calif., because it runs on real, semidisabled hardware and thus looks real to hackers.

"I'm not a big fan of honeypots that emulate known services," because it's hard to outwit real hackers with pseudo software, Spitzner says. "What's cool about Mantrap is it doesn't emulate anything." The program simply sounds a silent alarm and logs all intruder activity, including keystrokes, for forensic use.

Software emulation might be more useful for corporate environments where business secrets are being safeguarded. For instance, Windows NT doesn't log users' IP addresses, only computer names, so tracking internal activities such as someone attempting to access files in Network Neighborhood that they're not supposed to see is more difficult without using additional tools.

Software from sNet for instance, adds IP logging to Windows NT and simulates NT networks in order to safeguard corporate information. Like all software emulators, it's not real — just an imitation network.

The theory is that if someone has clicked, say, 10 folder levels down in Windows NT's Network Neighborhood into areas they aren't authorized to see, they might have malicious intent.

"There's nothing wrong with casual attempts to rattle the door," such as looking around here and there, says Schlossberg. "[But] how can an 'innocent' person use 50 different log-ins, then 'borrow' the customer database?"

As appealing as it might sound to toy with hacker psychology, only organizations that have covered the basics but have advanced security requirements need to worry much about honeypots. "There are bigger and better priorities. What good is having a honeypot to use as a tripwire mechanism when they're hacking all of your other computers at the same time?" asks Spitzner. "Once [companies] have their firewalls and systems locked down, then you can implement a honeypot."

An appropriate organizational culture is needed, too. "We're finding these systems work better in the military and government worlds than in the regular [world]," Schlossberg says. If anyone should know the art of deception, it's the government and the military, he says, citing such organizations' general siege mentalities and overall awareness, regimentation and standard operating procedures as crucial differentiators.

Internal Threats

What happens when companies catch their employees snooping? That's open to legal and ethical debate. Schlossberg says that military entities aside, the companies he deals with almost always refer the matter to their human resources departments. But case law is fuzzy; honeypots could be interpreted as entrapment by leaving a door open.

"The idea to use [honeypots] internally to snoop around on their own staff is still probably somewhat in bad form or in bad taste, as management goes," says Williams. "They shouldn't need to have that process in place, certainly not to the extent that they might have it aimed outward."

Honeypots can also be prime launching spots for nascent attack-backs — doing port scans to find the hacker and then completely wiping out the offending network — in addition to legal action.

For external attacks, "posture depends on the intent of the host. If it's a three-letter agency run out of the Pentagon, they're not going to be as cordial as a credit union in Idaho," Williams adds.

Schlossberg says the push for honeypots isn't coming from U.S. companies, per se. "The impetus is really coming from overseas, where they're looking for immediate attack-back capabilities. There are many countries that have taken a very aggressive position on information warfare; they don't have the same jurisdictional complexes as we do in the U.S.," he says.

Off the Shelf

Mantrap sits on a hardware honeypot to record IP and other intruder data. It's $3,495 from Recourse Technologies Inc. in Redwood City, Calif. (*www.recourse.com*)

The Deception ToolKit (TDK) attempts to use obvious holes in operating systems to lure hackers, then feeds pseudo-responses to known attacks in order to delay them. Requires hardware. TDK is free from Fred Cohen & Associates in Livermore, Calif. (*www.all.net/dtk/*)

HONEYPOTS

Core Elements

- Looks and behaves as if real
- Doesn't disclose its existence at any point
- Is partially disabled so hackers can't still take it over
- Has a dedicated firewall that prevents all outbound traffic, in case honeypot is compromised
- Lives in a network DMZ, untouched by normal traffic
- Sounds silent alarms when any traffic goes to or from it
- Begins logging all intruder activity when it first senses intrusion

MOREONLINE

For links to further research on honeypot systems, visit this story online.
www.computerworld.com/honeypot

OpenGL

BY SAMI LAIS

IF EACH TIME you drove your car, you first had to give detailed instructions to the starter motor, transmission and every other piece of hardware, all but the most determined drivers would stay home.

Pity the programmer creating 3-D graphics hardware or software, for his job often involves a similar level of detail, requiring the implementation of complex algorithms and the coding of involved routines.

When Silicon Graphics Inc. began creating OpenGL in the late 1980s, its goal was to insulate developers from that tedium, says Bill Mannel, OpenGL product manager at Mountain View, Calif.-based SGI.

OpenGL is an open-source library of standardized subroutines for 3-D graphics functions, each composed of complex mathematical equations and computations.

OpenGL has routines for common graphics functions such as building up a 3-D surface from tiny triangles (tessellation), giving a surface a specific texture or smoothing jagged edges (antialiasing). Instead of writing proprietary code or recreating and respecifying the underlying computations each time they need such functions, developers just make an OpenGL call.

Cross-Platform Power

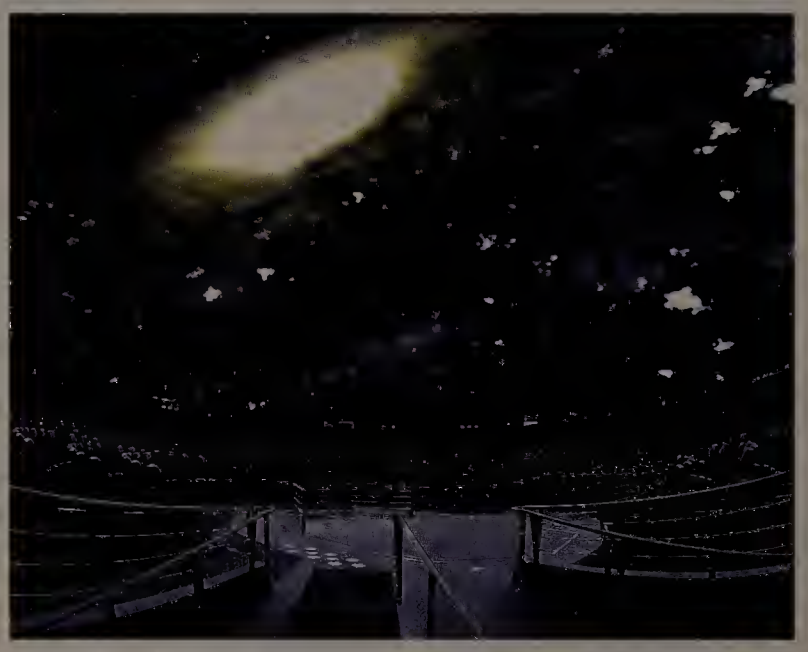
OpenGL doesn't specify what operating system or windowing system to use. Thus, it can be used to develop for Microsoft Windows PCs, Apple Computer Inc. machines running Mac OS X, Unix workstations and even supercomputers like the SGI machine that paints the skies at the Hayden Planetarium in New York.

SGI released OpenGL in 1992 and turned it over to the OpenGL Architecture Review Board (ARB), an industry group.

A hardware maker may write an extension to accelerate, say, global lighting: As a light source moves, effects such as reflections, highlights and shadows automatically change throughout the scene. The next time the ARB meets, it will evaluate the extension and may adopt it. Eventually, Mannel says, "all the best-loved ARB extensions are rolled up to create the next version" of OpenGL.

DEFINITION

OpenGL is an open-source library of graphics functions, maintained by an industry consortium, that provides a cross-platform specification for 3-D rendering and hardware acceleration of graphics.



HAYDEN PLANETARIUM'S SPACE THEATER, powered by a 28-processor SGI Onyx2 workstation with seven InfiniteReality2 visual subsystems, creates a 3-D model of the Milky Way that's 100,000 times larger than that produced by a normal star projector.

The current version — 1.2, released in 1998 — added texturing to support hardware-accelerated volume rendering. Volume rendering lets users describe and act upon not only the surface of a 3-D object, but also its interior. Slice open a volume-rendered digital watermelon and you will see the smooth green rind give way to juicy red flesh filled with shiny black seeds.

The interior will behave in a way consistent with its volumetrically defined characteristics. Engineers can digitally crash a car to test how well its structural shell will protect passengers, all before the first prototype is ever built.

OpenGL is both hardware and software, Mannel says. "We have an OpenGL implementation entirely [in] software," he says. "It works, but it runs incredibly slowly."

Hardware is faster. By using chips that accelerate particular OpenGL functions, vendors can customize hardware for specific applications.

To claim OpenGL conformance, hardware vendors must run a series of tests and submit the results to the ARB for certification. Not all OpenGL-conformant hardware is equal, however.

A low-end graphics accelerator board suitable for games may cost $700 and "may handle antialiasing," says Mannel, but at a 75% performance penalty. High-end computer-aided design software for solids modeling — for slicing and dicing 3-D images — demands high-end boards that cost about $3,000.

New Uses

As applications scale up to supercomputer levels, the hardware also becomes more sophisticated and specialized and the underlying mathematics gets more complicated. Model developers generate curves using OpenGL calls based on equations called b-splines. Flexible, nonuniform rational b-splines model the curving steel parts in an automobile. Custom chips with six-figure price tags allow rapid modeling of a car body, says Mannel, and the payoff is fast.

After Bayerische Motoren Werke AG in Munich, Germany, bought Land Rover, the company came out with a cheaper model. When a gap between the door and body became too big, "customers became aware of it and hated it," Mannel says. By displaying a life-size digital model in SGI's Reality Center, an immersive 3-D visualization environment, "BMW could see what it would look like at its worst and at its best and adjust the tolerances," he explains.

As 3-D graphics hardware and software grow more sophisticated and cheaper, 3-D visualization and simulation will become a commodity with many more uses, according to Louis Latham, an analyst at Gartner Group Inc. in Stamford, Conn.

At the federal Health Care Financing Administration, a data analysis environment built with SGI's MineSet, a suite of data mining and visualization tools that use OpenGL, will help the agency identify suspicious Medicare billing and treatment practices. Stereoscopic visualization techniques help geologists find oil and gas. And the U.S. Navy is using SGI's OpenGL Performer, a programming interface, to create virtual reality pilot training implementations. ◗

DirectX Chases OpenGL

OpenGL may be the oldest, most widely used and most sophisticated graphics library, but Microsoft's DirectX is nipping at its heels.

"It's not that Microsoft is targeting SGI," says Rob Enderle, an analyst at Giga Information Group Inc. in Houston. It's "only that they see a need and are going hellbent for leather to meet it."

OpenGL's ARB members meet quarterly. The ARB is slow to add functions to OpenGL, says Bill Mannel, SGI's OpenGL product manager, because it must get a consensus among board members.

Conversely, "Microsoft can execute much faster than SGI can and is just as driven," Enderle says.

For multiplatform high-end graphics, simulation, modeling and visualization, OpenGL indisputably leads. The Windows-only DirectX has been used mostly in office applications and, increasingly, by games developers. But "as DirectX moves to game platforms and future nVidia gear, it will be incredibly hard for OpenGL to remain relevant, let alone be considered a leader," says Enderle.

The issue is a popular topic of debate in online user forums. In one, users acknowledge OpenGL's innovation and feature richness but complain about the ARB's slowness in releasing new features and grudgingly praise DirectX. "The only good point about DirectX 8.0 is the new programmable pixel and vertex shaders [for tighter control in effects]," says Coco, a chat room participant. "They're going to rock."

If SGI doesn't develop a strategy, Enderle says, OpenGL may not be around in three years. "DirectX will eventually move into the supercomputer space," he says. "SGI can take the lead in making this happen and get some of the credit, or fight it and be left on the battlefield."

Meanwhile, the debate continues online. "Microsoft, for all its stodginess, is a lot more nimble than the ARB," says McCraighed, a user and chat room participant. But "I'm quite happy with the [ARB] extensions process."

– Sami Lais

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Greasing the Wheels Of Web Commerce

Watchfire's tools find and fix Web content problems that turn away users

BY ROBERT L. SCHEIER

FEW START-UPS are talking about getting funding these days, much less going public. Web site analysis tool vendor Watchfire Corp. is a happy exception.

Having raised $25 million in venture capital financing in January, Watchfire is "pushing ahead full-steam" to become profitable by the end of the year and go public at about the same time, says Michael Weider, founder, president and CEO of the Kanata, Ontario-based company.

Why so optimistic? Because in a slowdown, the Global 2,000 companies that make up more than 80% of Watchfire's revenue are concerned with getting the most out of their existing Web sites, according to Weider.

"The last five years, the focus has been on building the infrastructure," he says. "Now the focus is on, how do we make it work?"

Working the Web

Watchfire offers two main products. Its Enterprise Solution lets administrators create "spiders" that constantly crawl through Web sites searching for more than 50 types of content problems, such as broken links between pages and forms that don't work.

The Enterprise Solution comprises the Linkbot Enterprise Server, which stores data about Web site performance and delivers it in customized reports; the Linkbot Developer Edition, which makes the scanned data available to developers who can troubleshoot and fix the problems; and the Macrobot, Watchbot and Linkbot tools, which scan Web sites looking for broken links.

Watchfire's Metadata Management System helps Web administrators analyze and manage metadata about their sites, making it easier to organize and search Web sites. It's currently running on Web sites with as many as 5 million pages and 5,000 servers, says Weider.

Several customers praise Watchfire's ease of use, flexibility and scalability. Yack.com Inc., an online guide to Web-based events such as chat sessions and celebrity appearances, chose the Watchfire Enterprise Solution last October to determine how easily viewers can access the 150,000 events in its database, says Wilcil Joseph, a quality assurance manager at the New York-based firm.

Joseph says he considered site management services but rejected them because Yack wanted a product that could be customized at both the scanning and reporting levels. "For example, there are some pages on our site that never change," he says. "I don't want the scanner to go over those pages every time."

"We have about 500 people who contribute [to a public Web site], ranging from Java developers to just somebody who posts a calendar," says John Woods, a managing consultant at Buchanan Associates, a consulting firm in Irving, Texas, that uses Linkbot Enterprise, Linkbot Developer and Metabot to manage Web sites for Bell Helicopter Textron Inc. in Fort Worth, Texas. "We wanted something which could be easily used and easily understood."

TONY FOUHSE/KLIX

WATCHFIRE CEO MICHAEL WEIDER says the company has shifted from building Web infrastructure to making it work.

Watchfire Corp.

Location: 1 Hines Road, Kanata, Ontario K2K 3C7

Telephone: (613) 599-3888

Web: *www.watchfire.com*

Niche: Monitoring the integrity and accessibility of Web site content

Why it's worth watching: Watchfire's products promise to maximize a Web site's return by improving its accessibility.

Company officers:
- Michael Weider, president, CEO and founder
- Russ Jones, chief financial officer

Milestones:
- May 1996: Company founded
- November 1996: Linkbot released
- December 1999: Received $13 million in first-round funding
- October 2000: Launched Watchfire Enterprise Solution
- January 2001: Received $25 million in second-round funding

Employees: 150; growing at 300% annually

Burn money: $38 million in two rounds from Goldman Sachs & Co., Polaris Venture Partners Inc., BancBoston Ventures, Kodiak Venture Partners and others

Products/pricing: Watchfire Enterprise Solution begins at $5,200; Metadata Management System starts at $5,200.

Customers: Lockheed Martin Corp., Motorola Inc., Yack.com, The McGraw-Hill Cos., Lucent Technologies Inc. and others

Partners: Vignette, Ingram Micro Inc., Allaire Corp. and Gomez Inc.

Red flags for IT:
- Products are limited to examining Web site content integrity.
- Managers who don't want another monitoring tool to manage may find competitors' services more attractive.

COMPUTERWORLD emerging companies

Content-centric

Watchfire addresses problems with Web site content only, however, not with underlying infrastructure such as Web servers and network switches. That means customers need to buy, configure, learn and manage both Watchfire's tools and other site measurement and testing tools.

In addition, the software runs only on Windows NT and Windows 2000 servers, with no plans for a Unix version. But once installed, the tools can scan both Unix and Windows Web servers, claims the company.

Watchfire recently signed a co-marketing agreement with Vignette Corp. in Austin, Texas. Vignette's tools, which will manage actual Web site content such as documents, will be linked with Watchfire's tools, which ensure that content is accessible, says Weider.

"Our objective is to integrate our software with the workflow of all content management systems," he says, so that after a product manager or designer has approved the look and feel of a page, Watchfire can automatically check it to ensure that the page will actually work.

Those are big plans, but with solid backing — and Web sites big and small trying to prove their worth — Watchfire may be one bright spot in a troubled market. ◗

Scheier is a freelance writer in Boylston, Mass.

[the buzz
STATE OF THE MARKET]

The Web Integrity Niche

Watchfire plays in a loosely defined space it calls "Web content integrity," which means it helps ensure that content on a Web site is accessible to users. The company's niche is in providing a software product, not a service, and in focusing on finding and fixing structural problems with Web site content, such as broken links or slow-loading pages.

Because the market is so specific, IDC has no estimates for its size, says Dick Heiman, an analyst at the Framingham, Mass.-based research firm. Heiman and others caution that Watchfire's tools work only within a corporate firewall and don't address Web server problems or network slowdowns that can also affect the user experience. For the big picture, they say, Web managers will need to add capabilities such as load testing and monitoring of the overall Internet.

Among the current major players are the following companies:

WebCriteria Inc.

Portland, Ore.
www.webcriteria.com

Max, WebCriteria's intelligent browsing agent, simulates the way an average user sees, thinks and moves through a site and compares it against a usability model to assess how user-friendly the site is. Uttam Narsu, an analyst at Giga Information Group Inc. in Cambridge, Mass., says that because it's based on "kind of a theoretical model," he doubts Max can predict a user's actual experience.

Keynote Systems Inc.

San Mateo, Calif.
www.keynote.com

Keynote provides a service that uses a worldwide network of servers and assesses actual Web site performance from different locations and over different-speed connections. This is still only a partial answer to the site analysis problem, says Narsu, because it only monitors the health of the Web, not a server behind a corporate firewall.

Mercury Interactive Corp.

Sunnyvale, Calif.
www.svca.mercuryinteractive.com/

Mercury Interactive is pushing into the Web site monitoring space with its Astra LoadTest and Astra QuickTest. Its ActiveWatch service, like Keynote's, monitors Web site performance from various points around the globe.

– Robert L. Scheier

Making Users All-Knowing

The demand among users to get data in countless new forms is creating a tremendous need for directories professionals. By Melanie Menagh

"ONE OF OUR MANAGERS wants sales numbers for a particular customer for a product," says John Vitale, director of internal consulting in the information systems department at Rich Products Corp., a food wholesale company in Buffalo, N.Y. "We don't only want to get them the raw numbers, but also a profile of that customer, what's coming out of our R&D department, are we offering any special promotions."

Until recently, the executive would have to send a query to the IT department for the answers. The IT staff would then have to look in multiple applications. Now, with the boom in directories services, the demand is for IT to develop a system that allows a search across all applications, so end users can access the information themselves.

"We have to provide the information users need to drive business and a near-real-time basis for creating business reports and solutions," says Michael Bisch, a data architect at Avnet Inc. in Tempe, Ariz.

The need to give end users access to information is driving the explosion in directories functions.

Consider Fairchild Semiconductor International Inc. in South Portland, Maine, which has 4,000 customers worldwide and sells 35,000 to 40,000 different products.

Fairchild employees have to gather information quickly when the vice president of Southeast Asia operations wants that region's sales numbers, or when "a sales manager in Massachusetts wants to know what a particular customer has been buying," says Barry Driscoll, corporate information systems infrastructure director at Fairchild.

Driscoll's staff works with several products. "PeopleSoft is our [enterprise resource planning provider], as well as SAP and Oracle," he says. "We have selected Informix and Vantive, [which] we use for sales and management and customer support. Sybase is our database platform for that. For reporting and implementing, we use Oracle."

Getting all of those software systems to communicate is tough. "The idea of standardization is a challenge," says Driscoll. "We spend a lot of time standardizing platforms and products."

The next challenge for IT is to educate users about self-reporting. "We have ongoing training activities," he says. "When we acquire companies, we send our IT people out to train people to integrate their data into our system."

This has freed IT professionals from having to grind out data themselves. "They are now responsible for data-

BARRY DRISCOLL

"We send our IT people out to train people to integrate their data into our system."

base design and optimization. They are doing much more exciting work," says Driscoll.

"From the data architecture perspective, we need people who understand information relative to the business, to be able to translate business requirements into data requirements," says Bisch.

On the technical front, Bisch says, good directories people will require an "increased amount of equipment knowledge from systems administrators, Java developers, program and project managers. The directory piece is the icing on the cake. We need people to create the infrastructure — what it takes behind the scenes when somebody says, 'How many of this did we sell in October?' "

New directories imperatives are increasing the demand for IT security skills. "We use LDAP [Lightweight Directory Access Protocol]," says Bob Sutterfield, team leader for Internet services at Alcatel in Plano, Texas. "It's a standard that's becoming popular for authenticating users."

Since LDAP is a relatively new technology, Sutterfield recruits people with e-mail or Web server backgrounds. This new area also requires people in the IT department to have communication skills.

"Our people have to set up something that addresses people's needs and convey those standards and support to other administrators and get them into consensus on solutions," Sutterfield says.

A major challenge is setting up and maintaining security for directories access.

DON ROHDE

"This is pulling the whole picture together, giving it a standard interface."

"LDAP doesn't require much baby-sitting. But when it's broken, someone needs to fix it, so we're hiring people who are well-rounded and can jump in and troubleshoot," says Sutterfield. "It's the same as with any system: garbage in, garbage out. It's only as good as the information you put into it. It's important to get it right at the beginning."

One of the hottest areas in directories services is portal technology. "Portals are a framework that allows you to pull multiple indicators into one search," says Don Rohde, a principal consultant at Computer Task Group Inc. in Cleveland.

"With portalization, you can access data, but also documents, project plans, intellectual capital," he says. "IT has to design an overarching piece that could search all over. We're creating data marts, pulling together all aspects of knowledge management."

Vendors that once had client/server or Web-enabled architecture are now portalizing, says Rohde, who uses products from Plumtree Software Inc. in San Francisco.

"Plumtree has a gadget which is like an [application programming interface] to the framework to the original project," he says. "Our job is to make it accessible through our intranet. What IT is now doing is developing ways to personalize portals, to determine which areas of the company a person has access to.

"A lot of it is math," Rohde adds. "You have to build and maintain the linkages. This is pulling the whole picture together, giving it a standard interface, search and access to information, plus limit what people can get access to."

"Portals gain access to information, regardless of the source," says Vitale. "The information might be in a database or on the Web or intranet or our SAP system."

Vitale says he wants his people to design security architecture as well as put together business, technical or application architecture. He also wants general project managers and people who can manage application service providers.

The rewards are many, according to Bisch. "Salaries are skyrocketing because people just aren't out there," he says.

Demand will remain high, says Sutterfield: "With [business-to-business e-commerce], there is definitely going to be increased demand."

People with portal knowledge "will be able to write their own ticket," says Rohde. "These skills are very hot and will continue to stay hot." ◗

Menagh is a freelance writer in Calais, Vt.

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WANT TO LEAD?
Do you have what it takes to inspire and influence others? CIOs reveal what they look for in potential leaders. Page 54

E-COMMERCE PITFALLS
Web shopping may be easy, but technology problems and poor processes could keep the customers away. Page 40

XML GETS BUSY
XML starts to deliver on its starry-eyed promises, but with every silver lining there's a cloud or two. Page 76

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HOLDING IT ACCOUNTABLE

APPLICATION DEVELOPMENT

A NEW ACCOUNTING STANDARD for software development will force dramatic changes in the way IT projects are run, reports Kathleen Melymuka. The bookkeeping rules require much greater discipline in project management and, like Y2K, they can't be ignored — not with the SEC watching. IT departments will need to keep detailed records of the time spent on tasks so that internal software costs are correctly fed into the general ledger. Application development units that can't handle these chores may be replaced by an outsourcer that can.

Report begins on page 46.

MORE MANAGERS MONITOR E-MAIL

Computerworld survey: Fearing lawsuits, loss of secrets, employers scan more worker messages

BY DOMINIQUE DECAMYN

Spot checks just aren't good enough anymore. The tide is turning toward systematic monitoring of corporate e-mail traffic using content-monitoring software that scans for troublesome words, according to an exclusive *Computerworld* survey.

About 38% of 75 corporate e-mail managers already use monitoring software either regularly or for spot checks. Of those who don't, 21% plan to install it next year, according to the survey.

The reason: Users of monitoring software said they're concerned about protecting their intellectual property and guarding themselves against litigation.

Put It in Writing
Four points that should be in an e-mail policy:

- A statement that computer systems are the company's property and are to be used for business purposes only
- A clear definition of what is and isn't appropriate use of e-mail.
- A statement to employees that they can't expect e-mail to be private and that all e-mail may be monitored.
- An explanation that violations can lead to disciplinary action, up to and including termination.

"I didn't really realize how much of a problem I had until I started using [monitoring software]," said Jeff LePage, director of MIS at American Fast Freight Inc. in Kent, Wash.

LePage is using MIMEsweeper software from Kirk-

E-Mail Monitors, page 97

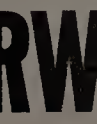
REPORT: CODE QUALITY TO TAKE A HIT

But many CIOs defend integrity of software

BY THOMAS HOFFMAN

As if the year 2000 problem won't be enough of a Pandora's box, here's another one for IT organizations: Software developed by user companies next year could be buggier than ever.

According to soon-to-be-released research from Stamford, Conn.-based Meta Group Inc., more than half the world's biggest companies have disbanded their in-house software quality assurance departments as they have pulled specialists onto their Y2K projects. The trickle-down effect, according to Meta Group, is that few of these companies will redeploy their quality teams, so application development error rates will increase.



MERRILL LYNCH'S JOHN MCKINLEY disagrees with Meta Group findings

Meta Group's software quality assurance research, which is drawn from its "Worldwide IT Trends and Benchmark Report," is based on survey responses from information technology executives at 318 of the world's 2,000

Code Quality, page 97

MERGER SPURS IT COST, JOB CUTS

ConEd/Northeast see pressure to cut rates

BY JULIA KING

Consolidated Edison's $3.3 billion merger with Northeast Utilities is bound to trigger sharp cost-cutting plus employee layoffs within the two companies' IT groups, analysts said last week.

"The merger means an immediate redundancy in the IT infrastructure, plus deregulation means tremendous pres-

Merger, page 97

CAN ACQUISITION STAY HEALTHY?

Aetna/Prudential face data challenges

BY THOMAS HOFFMAN

Aetna Inc.'s top IT executive said his company is set to absorb its third major health insurance acquisition in three years with the takeover of Prudential HealthCare.

But Wall Street analysts and health care consultants warned that despite its merger and acquisition experience, the

Aetna, page 16

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Hot Skills: ASP

Talk to most anyone about application development, and you'll hear about a shift to service providers as the business model. Rather than incur the cost of in-house application development, enhancements and maintenance, more and more businesses are shifting to application service providers. Suppliers now provide the application development expertise, host the application and continue to upgrade it based on client needs.

As the shift occurs, more and more focus is placed on day one quality, continuous innovation and service that allows one ASP to carve out a preference among customers. The underlying strength is in flexible coding that creates applications, which can be put to work quickly for customers.

Remington International
San Jose, CA/Boston, MA

Remington International is a high-tech recruiting firm specializing in the placement of exceptionally qualified IT professionals into full-time permanent positions. Remington has successfully completed thousands of searches for industry-leading corporations in major metropolitan markets, such as Boston, New York, Atlanta, Chicago, Los Angeles and San Jose.

"Our focus is simple. We deliver the best technical talent out there," says Heather Doherty, division manager for Remington's San Jose office. "Remington International specializes in placing IT professional who range in salaries from $50,000 to $110,000. We look to provide business solutions to a range of companies in the valley, from small start-ups to the large, more traditional software companies."

Doherty says when hiring managers come to Remington they are hiring based on technical skills, experience, aptitude and degrees. "As an agency, we can fill any technical position if the companies follow our very simple process. This would include the hiring manager coming into our office for the round of interviews with our candidates and then bringing back the top candidates to their site for a more in-depth technical interview. This process typically takes 48 hours to bring the candidate on board. This procedure is very simple and painless."

TechProse
Lafayette, CA

Almost two decades ago, TechProse was founded as a firm providing technical writing and training expertise to clients. That's just a small portion of the company's business today. "We still provide some technical communication service," says Steven Laine, president. "But we also provide instructional design and delivery and IT consulting services. We provide all three services as full-scale outsourced projects or by providing individual consultants to our clients."

Laine says the company works with start-up companies who are using an application service provider model. "In that way, we work in a distributed environment," he says. Currently, the TechProse team is developing a virtual reality tour of seven floating ships for the San Francisco Maritime Museum. "The end product will be used on the Internet or through a kiosk," says Laine. "It's another option to actually walking on to the ship. We're also doing a project for the City of San Francisco that integrates the criminal justice system, linking together police, 911, sheriff, district attorney, parole and courts databases and systems. It's a great challenge involving legacy systems, an Oracle database and Java development on the front-end and a web front-end."

To handle its customer commitments, TechProse is hiring individuals with experience in instructional design and technical skills in UNIX, Windows NT, database development, Java, XML, C and C++ languages. "We keep in mind, however, that being successful in this market requires about 45 percent technical skill. The remainder involves the ability to be diplomatic, to articulate ideas and the chameleon-like ability to be productive in varied client environments and workplaces," explains Laine.

"We work with our consultants to let them know the industry trends and support participation in seminars, conferences and classes, along with our in-house and comprehensive suite of computer-based technical training," adds Laine. "But the reason people join and stay with TechProse ultimately has to do with our culture, style and approach. We are a team of responsible adults. Employees understand our business objectives, and we leave it to them to meet them competently. Employees participate in the company's success. We build long-term relationships with both our clients and our employees."

IT careers

For more job opportunities with ASP firms, turn to the pages of ITcareers.

- **If you'd like to take part in an upcoming ITcareers feature, contact Janis Crowley, 650.312.0607 or janis_crowley@itcareers.net.**
- **Produced by Carole R. Hedden**
- **Designed by Aldebaran Graphic Solutions**

IT careers

IT Careers in Illinois

To know Illinois is to know not only the lakefront in Chicago but also the plains of middle Illinois and the rolling hills of the state's southern tip.

It's a state that's home to numerous corporate headquarters. There's a high density of available higher education institutions. And the technical community is extensive, with business-oriented technical skills in high demand. As one company representative says, Illinois is a land that is technically rich in terms of opportunity and education.

Hewitt Associates
Lincolnshire, IL

As the nation's leader in outsourced employee benefits, Hewitt Associates stretches its capabilities for customers by using technology. David Pierce, chief network officer for Hewitt, says the company is a bricks and clicks e-business, providing information, benefits and human resources management to companies and their employees.

At any given time, up to 14 million individuals have access to Hewitt's web sites and call centers to check on their accounts, access their health-related benefits, get answers to questions or alter how their pension and retirement funds are invested. Approximately 1,000 application development employees and 850 infrastructure employees maintain the system. The core information systems operation uses leading-edge IBM mainframe, UNIX and state-of-the-art communication technologies.

Pierce says Hewitt hires both new college graduates and seasoned experts. "We look for people who have a strong track record for specific technical roles," he says. "But we also hire people straight out of college who are excited about technical challenge, aggressive about their ongoing learning, who can work well with our team and who are ready for a variety of challenges. We hire for potential, even if there is no specific role."

Retention at Hewitt Associates runs at 93 percent, based on technology remaining a strategic part of the business. "What keeps people at Hewitt is the other people who work here and the professional relationships we share," Pierce says. "We work together and get the job done.

"Over time, you'll have the opportunity to extend your reach in many directions," he adds. "We stay away from an established set of career steps. We customize our roles to you, providing training and education to help you fulfill your responsibilities." Hewitt plans to increase its IS group by approximately 10 percent in 2001.

PricewaterhouseCoopers Management Consulting Services
Chicago, IL

With offices around the world, including Chicago, PricewaterhouseCoopers Management Consulting Services has more than 35,000 employees in 70 countries. "We offer a full range of consulting services, from strategic planning through implementation," says Angela Cinefro, director of experienced recruiting for the Midwest unit. "We are leaders in a lot of the services we offer to clients, such as customer relationship management and e-business – and that's why clients come to us."

The laurels for the management consulting firm are aplenty, from being named "the most aggressive" of the Big Five in e-business (*Silicon Alley Daily*) to "Top Innovator in e-business Networking" by *eWeek* magazine. PricewaterhouseCoopers was also named #9 on *Computerworld* magazine's [2000] "100 Best Places to Work in IT" and *Working Woman* magazine's "100 Best Companies for Working Mothers." PwC consistently appears as a top employer choice among graduating business students on the Universum annual survey and was the only company ranked as one of the top two employer choices by undergraduate business students.

"On any given project, we are going to perform analysis, design and implementation," explains Cinefro. "We offer one of the top-notch methods for how we approach the client. We need to hire candidates who are able to deploy multi-disciplinary resources and who can deliver strategic change, process improvement and technological innovation. Some of our fastest growing areas are in emerging technologies, and we continue to seek people within our key industries – telecommunication, transportation, financial services and e-business to the next generation, what we call m-business (mobile business)."

Cinefro says working in the Illinois region provides access to IT projects in telecommunication, financial services, automotive, consumer products, energy and transportation. New employees are assigned a resource manager to help align projects and development needs with your career. New hires also are assigned a coach who watches over performance and career targets, while linking these to emerging technologies.

"After meeting with the people here, you'll see that our company is built on people and their ability," adds Cinefro. "We're a diverse organization, where people have a broad range of experiences, backgrounds and skills. They have one goal in mind, though – to bring top-notch solutions and services to our clients. We want people to see the most action possible, with the widest range of opportunity."

Sears, Roebuck and Co.
Chicago, IL

Sears isn't just your local retail department store. The corporation today has its traditional full-line retail stores, hardware and authorized dealer stores, automotive products and service locations, outlet stores, appliance and home repair, appliance parts, a credit operation that serves more than 39 million households and the new Sears Gold MasterCard, which already has $1.5 billion in receivables.

Information technology is viewed as a strategic partner in each of these varied businesses. With just over 1,700 IT professionals, most of whom are located at corporate headquarters, the organization uses legacy systems, database management and web-enabled applications. The network infrastructure combines voice and data and includes the latest integrations of technology.

Projects undertaken by IT professionals at Sears link directly to the business' initiatives. One of these is The Great Indoors, a brand new format for home remodeling and redecorating. Peter Vozas, manager of executive recruitment for IT, says the new branding concept currently consists of four stores with an additional 10 or 11 to open this year. "We also just rolled out thegreatindoors.com e-commerce site. Our primary e-commerce site, Sears.com, allows customers to shop for a wide variety of merchandise, apply for credit and review credit charges. In terms of our credit business, we are converting some of our 60 million Sears card customers to the new Sears Gold MasterCard. Technology is key to the success of these initiatives."

Sears looks for individuals with a combination of technical skills to include mainframe, web-enabling and inter-networking of voice data, servers, routers and LAN/WAN. In addition to legacy experience, Vozas needs employees with the ability to web-enable interfaces to large systems and experience in UNIX, Java, HTML and C++.

The company offers four defined career paths – technical, relationship, resource and project. "Within each of these career paths, we have roles and job families that are based on clearly defined role competencies and mastery levels required to be successful in each of the roles," says Cheryl Robinson, director of human resources for IT. "You can change careers several times and never leave the building." Employees take part in a minimum of 10 days of training per year.

"Very simply, Sears provides IT professionals with opportunity at the technical level, as well as at the business level. The day-to-day work environment is pleasant and rewarding," adds Vozas. "It's a dynamic organization, fast-paced. We must push forward, do the unique, to keep pace with our customers' expectations."

IT careers

For more job opportunities in Illinois, turn to the pages of ITcareers.

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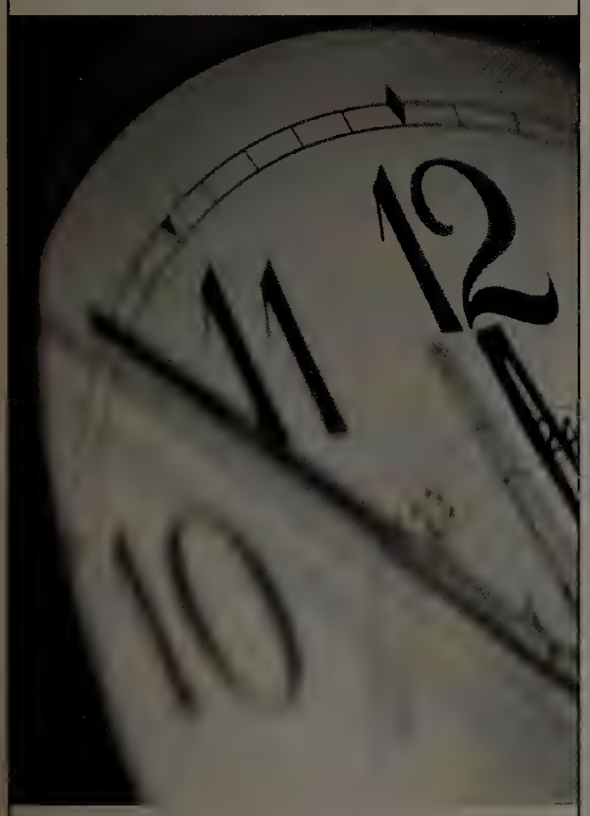

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Computer Programmer: Join an academic research team to develop new algorithms &software for Computer-Assisted Drug Discovery (CADD). Req. B.S. in Biochemistry or a closely related field plus Computer Science courses in Algorithm Design & Analysis, C/C++ Programming &Graphical User Interfaces. In lieu of the above requirements, will accept B.S. in computer science w/ substantial biochemistry background demonstrated through courses in chemical structure, chemical nomenclature & chemical synthesis. Resume to: Prof. R.S. Pearlman, College of Pharmacy, University of Texas, Austin, TX 78712. EOE.

Software company, Boston requires professional with following skills for junior/senior positions: Sybase Database administrator & developer Oracle database administrator & developers Developers in VBA, PB, WEbtechnologies REqd MS or equiv in educ & exp in Electronics/Computer science or in related field for senior postions and BS in electronivs/ comp Science or related field plus 2 years exp for junior positions; competitive salary and benefits fax resumes to 508-351-9122 email yescomnr@aol.com

Several computer related positions for large telecom and computer services company in the international airline telecom industry. See www.sita.com for details. Positions in the New York and Atlanta office. Send resume to: Ms. CJ Vanner at SITA INC at 3100 Cumberland Blvd., Suite 200, Atlanta, Georgia 30339.

COMPUTER

IT PROFESSIONALS
ROCKVILLE, MD

Lockheed Martin, a market leader in the deployment of Electronic Toll Collection systems, is seeking qualified candidates for multiple positions at its Systems Development Center.

PRODUCT DEVELOPMENT MANAGER: Responsible for managing a team involved in building an important object-based software product for the transportation industry. Responsibilities include all technical and management aspects of the product development group and the software life cycle, including design, construction, deployment and implementation. Duties also include all customer and vendor management and troubleshooting and user support to top clients. Extensive experience in FORTE development environment a must. Master's and 2 yrs exp or a Bachelor's in Engineering and a minimum of 7 yrs exp in the field. Salary commensurate w/exp. Send resume via fax to: (201) 836-4466; Reference Job Code SU00301.
PROJECT MANAGERS: Experience managing systems development projects for clients, from deployment through on-going support. Need ability to write Requirements and Functional Design Documents, facilitate with technical staff designs and specifications, facilitate test plans and execution. Responsible for developing and tracking project schedules and budgets. Participate in developing proposals and estimates. Email resume to: mary.duppler@lmco.com; Reference Job Code PM0301.
SOFTWARE DEVELOPMENT ENGINEERS: Experience in object-oriented programming, Forte, RdB database environment, "C", "C++", VMS and UNIX platforms. Rounded experience in specifications analysis, code development, testing and systems integration, troubleshooting and documentation strongly preferred. Email resume to: mary.duppler @lmco.com; Reference Job Code SD0301.
SYSTEMS ENGINEERS: Experience in Engineering design as related to networking equipment, computer systems, sensor technology, lasers, relay controls, process controls, and/or industrial electronics. Spec/source various electronic and computer components. Develop engineering drawings in AutoCAD. Conduct statistical data analysis with desktop PC tools. Write engineering reports. College degree in appropriate tech discipline. Email resume to: mary.duppler @lmco.com; Reference Job Code SE0301.
SITE TECHNICIANS (Hilton Head, SC & Baltimore, MD): Experience in Windows, UNIX, networking equipment, sensor technology, lasers, relay controls, process controls and/or industrial electronics. 2-Year electrical engineering technical degree or equiv training. Email resume to: mary.duppler@lmco.com; Ref Job Code ST0301. EOE

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- HTML, Oracle, Developer 2000, RDBMS, Corba
- Y2K Comp., Forms 4.0, Reports 2.5, Crystal Reports
- DBA, ASPS, Visual Basic, Web Design/developer
- ABRAXAS, SIEBEL (Sales & Call Center) SIEBEL VB
- DHTML, JDK Swing, Visual J++, Jbuilder, Visual Cafe
- SAP R/3, HP-UX, SUN OS, Solaris, Cold Fusion, Broad Vision,
- Silver Stream, Clarify, Web Logic, WebSphere, Java WebSphere, Linux,
- EJB, Servlets, Applets, JSP, COM, DCOM, DML, UML, Relational Rose,
- Oracle Financials, ABAP/4, PL/SQL, MS SQL Server, Sybase, SQL.

The applicant should also have exp. in: interface w/hardware & software, provide functional cust. implement, config, train, analyze, interpret, code, test, backup, install, manage, customize, tuning, perform AS-IS study, of software. Dev Internet/Intranet appl., stored procedures, triggers. Create: database tools, tables, files, roles, indexes, space mgt, reorganize & sec. Asp, Web pages.

Apply w/resume to
Attn: Recruiter
860 U.S. Route I.N #4
Edison, NJ 08817.

Computer Programmer: Develop web and database application using Visual Basic, Active Server pages and DHTML; retrieve and analyze data with Crystal Report; develop, modify and maintain reporting systems. Req.: Bachelor's deg. or foreign equiv deg. in Computer Science, MIS or closely related discipline. Send resume to Settlement Funding LLC 5085 Avalon Ridge Pkwy, Ste 600, Norcross, GA 30071 Ref. SL.

Systems Analyst- (position is for CT office) design, develop & test software & web applications using C, C++, Java, HTML & SQL; assist other analysts w/ customizing software applications; identify problems & suggest solutions. M.S. in C.S. or related field req'd. Qualified applicants send resume to: HR Dept, Plural, Inc., 115 Broadway, 14th Floor, New York, NY 10006.

SOFTWARE PROFESSIONALS
Cogniant, Inc., a NY based IT Co. has positions available for software professionals -job sites throughout the U.S. Programmer Analysts, Software Engineers, Systems Analysts and Technical Recruiters wanted with hands-on exp. using Java, Unix, Visual Basic, Oracle, C, HTML, SQL, C++, Developer 2000, Windows NT, Small Talk. Send resume to: HR Dept., Cogniant, Inc., 32 Broadway, Suite 1414, NY, NY 10004

Remedy Administrator/Developer wanted by a Telecommunications co. in Newark, New Jersey. Must have a Bachelor's degree in Comp. Sci., M.I. S., Comp. Eng. or related field & 2 years exp. as Systems Administrator/Engineer with "hands on" Remedy ARS 4.0 or 4.5 exp. and 1 year exp. creating Active Links, Filters, Escalations and Menus, setup and customization of Remedy's HelpDesk. Respond to Net2 Phone, Inc, 520 Broad Street, Newark, New Jersey 07102 reference RIRJN-500.

Stat. Sys. Anal. - for pharmaceuticals devel./marketing co. in Malvern, PA; Must have MS deg. or equiv in computer science, statistics, biology or related field, & Advanced SAS Programming Certificate to provide statistical programming support for multiple discovery/development projects in SAS, C, SQL, Oracle and Oracle Clintrail in UNIX, IBM PC or Workstation environments. Apply to K. Wynne, Sanofi-Synthelabo, 9 Great Valley Pkwy, Malvern, PA 19355.

Computer Programmer needed for Boca Raton real-estate co. to maintain network and design and develop software and website. Min req. 3 yrs exp. Send resumes to C.O. group, 7040 W. Palmetto Park Rd., #4-286, Boca Raton, FL 33433.

Application Implementation Specialist

Use knowledge of ME & business understanding of planning & scheduling concepts, w/MRP II, APS, demand planning & forecasting, to install company products, (FactoryWorks & eDapter). Req: Must have an M.S. deg. in ME or rel. & 1 yr. exp. in above pos. or rel. w/ability to use SAP R/3 SD, SM, Java, C, C++ and ERP consultant exp. Travel required. Positions Available: Multiple

40.0 hr/wk. 9:00-5:00

Applicants send resume to:
Mr. Jeff Sloser, President
Triniti Corporation
1940 North 13th St., Ste. 231
Reading, PA 19604

Software developer in Win32 application development sought by electronic parcel delivery company in Newton, MA. Must have B.S. in Comp Sci, Math, Engg, Physics or technology and 2 yrs experience in any software development occupation. Respond by resume to: Holli Salz, HR Mgr ATA Bok, Inc., 29 Crafts St., Suite 300, Newton, MA 02458.

PROGRAMMER/ ANALYST
Plan, develop, test and document computer software using CICS/COBOL on IBM ES/9000 in MVS/ESA & DOS/VSE environment. BS in Comp Sci., Comp Engg, Elec Engg (or equiv) & 1 year exp. *Send resume to:*
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ITEK Consulting
51 Canterbury La.
Belle Mead, NJ 08502

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INTERACTIVE PROGRAMMER, Miami, Florida. Design, maintain and modify web pages, database interfaces, e-commerce/e-business solutions, web graphics, development environments, and Internet software and testing using languages: HTML, Java Script, Perl, PHP, ASP (Active Server Pages), VBScript, SQL (Structured Query Language); applications: SQL Server, My SQL, Oracle, Apache Web Server, iPlanet, on platforms as Microsoft 2000/NT, Unix and Linux. Liaise between computer programming department, users and senior management. Test and ensure cross-platform compatibility of web applications and interfaces. Minimum of two years experience in similar positions. M-F 9-6:00. Bachelor's degree in Computer Science, Mathematics, Engineering, or related fields. Please fax resume including salary requirements to: Ms. Laura Quesada, Director, Human Resources, Young & Rubicam Miami, 601 Brickell Key Drive, Miami, Florida, 33131. Fax No. 305-347-1951

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Programmer/Analyst, Must have Bachelor's Degree in Computer Science/Applications, and min. 2yrs. experience. Analyze and design user requirements and objectives, assist in feasibility studies and in determining functional specifications; design develop, configure, and code applications, computer systems and subsystems. Perform unit and system testing; provide technical support, personnel training. 40 hrs/wk, 9AM-5PM. $60K/yr. Send 2 resumes to: Silicon Strategic Solutions, 3664 Club Dr., Ste. 104, Lawrenceville, GA 30044.

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Programmer-Analyst. Needed immed. (2) to develop, code, test & maintain information systems & integrate with databases. Provide tech support as needed. Know Win NT, SQL, PL/SQL, C, C++. $75,000/yr. Bachelor's & 1 yr. exp. in any IT field. Fax res. to 240-218-8662.

Senior Programmer/Analysts - Harrisburg, PA. Multiple positions available for individuals with minimum Master's + 2 yrs exp or Bachelor's + 5 yrs exp in UNISYS 1100/2200 mainframe COBOL programming including DMS1100, RDMS2200, TIP/DPS and ECL. Work with users & programs through the entire systems development life cycle. Qualified applicants submit resume to: (201)836-4466. Reference job code: SPBA0301. Equal Opportunity Employer.

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Quality Assurance Analyst

Provide consultative support to business system project teams in the areas of quality assessment, risk management, and process improvement. We seek a self-starting team player with 3 years' quality assurance experience, including formal project lifecycle methodology. Working knowledge of automated test tools (Segue SilkTest, Mercury WinRunner); requirements management software (DOORS, RequisitePRO, etc.); PVCS version control software; and Lotus Notes, Microsoft Office, Windows 9x and NT, C++, Java, COBOL, and Visual Basic is essential. Extended travel for various projects may be required. Dept. Code: QA

Please forward your scannable resume and salary history or requirements, indicating corresponding Dept. Code, to: Phoenix, Human Resources Department, One American Row, P.O. Box 5056, Hartford, CT 06102-5056. FAX#: (860) 403-5534. E-mail: resumes@phl.com
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PROGRAMMER ANALYST (Multiple Openings)

Utilize Visual Basic 6.0, Oracle 8.0 & Windows NT to dsgn. & dvlp. custom apps. for 2/3 tier client server architecture. Duties incl. logical & physical database dsgn., functional rqrmts. gathering, writing documentation, application testing, installing, implementing & training. B.S. in Comp. Sci., Comp. Engrg., Elec. Engrg., Business or Math plus 2 yrs. exp. in job offered or as Software Engr. or Sys. Analyst rqd. Must have working knowledge of Visual Basic or Visual C++, relational databases dvlpd. in Oracle or SQL Server & client server technology. High mobility preferred 40 hrs/wk, 8 am – 5 pm. $66,670/yr. Qualified applicants report/submit resume to Thomas Dembosky, Mgr., Indiana Job Ctr., 350 N. Fourth St., Indiana PA 15701-2000. Refer to Job Order Number WEB160940.

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Respond to: HR Dept, IEM Services, Inc., 313 N. Country Club Blvd, Boca Raton, FL 33487.

Software Engineers/Programmer-Analysts/Consultants-Atlanta, GA. Entry-Sr. level positions. Analyze, design, develop, test, document business systs for use in energy industry. Requ: MS or Bach. degree in Comp. Sci./Engineering/Math/Commerce & 1-5 yrs exp. in various fields such as Oracle; Informix; Sybase; DB2, ODBC; PL/SQL; Shell Scripting, C/C++/Java; MS SQL-Server; SQL/PLUS; Rapid SQL; MS Access; MS Access 2000, PowerBuilder/Microsoft Visual Developer Suite; Visual C++, Gupta, VB; Windows NT, 95/98, UNIX, Sun Solaris, Developer 2000; Mail resume to V. Aladesuyi, Phoenix Solutions, Inc at 5 Concourse Pkwy, Suite 2925, Atlante, GA 30328.

Application Implementation Specialist

Use knowledge of ME & business understanding of planning & scheduling concepts, w/MRP II, APS, demand planning & forecasting, to install compeny products, (FectoryWorks & eDapter). Req: Must have an M.S. deg. in ME or rel. & 1 yr. exp. in above pos. or rel. w/ability to use MRP, APS, RDBMS and SQL and ERP consultant exp. Trevel required. Positions Available: Multiple

40.0 hr/wk. 9:00-5:00

Applicants send resume to:
Mr. Jeff Slosar, President
Triniti Corporation
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Reading, PA 19604

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Administrators & Developers for:

SQL Server; Oracle D/base; VBA, MS Office & Web Tech; VB Dvlprs w/exp. in Oracle, SQL & Web Tech; Java Dvlprs w/internet tech;

MS or equiv in educ & exp. in Electronics/CS/related field + 1 yr. exp. for Sr. positions & BS in Electronics/CS/related field + 2 yrs exp for Jr. positions; competitive salary & benefits; Fax resume to (908)753-0875 or email to jobs@stssoftware.com or STS Software, 51 Cragwood Rd, #301, South Plainfield, NJ 07080.

Application Implementation Specialist

Use knowledge of ME & business understanding of planning & scheduling concepts, w/MRP II, APS, demand planning & forecasting, to install company products, (FactoryWorks & eDapter). Req: Must have an M.S. deg. in ME or related or B.S. in ME plus 5 yrs. prog. exp. accept. in lieu of M.S. & 1 yr. exp. in above pos. or rel. w/ability to use Oracle 7.3, SQL, Alpha 800, Unix and ERP consultant exp. Must have Cert. in RDBMS - Oracle. Travel required. Positions Available: Multiple

40.0 hr/wk. 9:00-5:00

Applicants send resume to:
Mr. Jeff Slosar, President
Triniti Corporation
1940 North 13th St., Ste. 231
Reading, PA 19604

Technical Support Specialist: design, plan, test, & trouble shoot electronic circuit boards for computer hardware; develop & test electronic components to upgrade computer hardware and equipment. Req. BS or equiv. in CS, CIS or MIS w. proficiency in Cisco 500 Router, Sunserver & Unix. 40hr/wk, 8-5, $35K/yr. Contact Eastern Source International, Inc. 3400 Oakcliff Rd, Ste A-2, Doraville, GA 30340, fax: 770-936-8887.

Sr. Network Engineers (2): design/dvlp networks. Use of Visual Basic. Install & support Windows 2000; install & configure wide area network communication equipment. Install and support: system monitoring equip, PC's and servers. Req: H.S. Diploma & 2 yrs. exp. in position offd. or In Tech. Support or Sr. Network Analyst w/similar duties. Fax resume to: 770-717-7665.

Voice Applied Research - Speech Systems Developer
BellSouth Customer Technologies, Inc. is currently recruiting a Speech Systems Developer for Voice Applied Research in **Atlanta, Georgia.** If you have a Master's degree (or higher) in Computer Science, Electrical Engineering or related field and exposure to speech recognition technologies, BellSouth has the opportunity for you. Please submit your resume to: **Mr. Joseph E. Page, BellSouth Customer Technologies, Inc., 1700 Chantilly Drive, Suite 100, Atlanta, GA 30324.** EOE.

Sr. Systems Analyst wanted by NJ based IS/IT Professional Consulting Services firm for locs throughout U.S. Must have Bachelors degree in Math, Engg., or Comp. Sc, and some s/w exp. Respond to: HR Dept., Caliber Advanced Technologies, Inc., 84 Monticello Way, South River, NJ 08882-2703. (Ref: 01-7407IM).

Senior Software Engineers wanted by Co mfg. Point of Sale products & temperature controllers in NY. Must have MS in Computer Science or Applied Math or related field. Design and modify firmware, include logic circuit and s/ ware coding with assembler and Turbo C++, VC++/MFC. Good pay + benefit. Send resume to HR, Logic Controls, Inc., 355 Denton Ave., New Hyde Park, NY 11040.

Computer Professionals w/ exp. in one or more in the following areas: C++, Visual C++, Visual Basic, Power Builder HTML, Java Script, ASP, Java, AWT, Developer 2000, Lotus Notes Enterprise Java Beans, RMI, COM/DCOM MTS, CORBA, Tuxedo, IIS, Apache Netscape Application Server Oracle Web Server, Domino Oracle, Sybase, SQL Server, DB2 Windows NT, Unix, Linux, Perl PL/SQL, Developer 2000
Apply to:
Unique Computing Solutions, Inc. 1661 Worcester Road
Framingham, MA 01701-5401
Fax: (508) 598-6199

COMP S/WARE CO in Skillman, NJ seeks Progrmmr/Systms Analysts/Softwre Engrs. All positions req Bach degree in Comp Sci/Comp Eng/Math or reltd field & 1-3 yrs exp. Send resume to Optimal Solutions Inc, 3 Richmond Dr., Skillman, NJ 08558.

Database Administrator
Assist in data design & implem. & recommend database products, applications & tools. Work closely w/Systems Admin. to translate the req. of the logical data model into the physical model req. to support the design. Determine the DASD req. for new database objects. Be liaison between the DB Administrator(s) & the application systems development team(s), to ensure database integrity, security & availability. Support Lawson ERP software product. Do software upgrades for Oracle, MS SQL, & Lawson ERP appl. Perform logical database design for info. & capacity planning evaluations. Must have B.S. in BIS or CS or rel. & 3 yrs. exp. in above pos. or 3 yrs. exp. in rel. field w/ability to use UNIX & N/T o/s, Oracle RDBMS & MS-SQL, & exp. with Lawson ERP using Supply Chain functionality. 40.0 hr/wk. 9:00-6:00
Send resume to:
Mr. John P. Cummins, Jr.
Innotrac Corporation
6555 Sugerloef Parkway
Duluth, GA 30097-4915

Application Implementation Specialist

Use knowledge of ME & business understanding of planning & scheduling concepts, w/MRP II, APS, demand planning & forecasting, to install company products, (FactoryWorks, eDapter). Req: M.S. deg. in ME or rel. & 1 yr. exp. in above pos. or rel. w/ability to use PL/SQL, SAP R/3-SD module, Oracle, Visual Basic 6.0, and ERP consultant exp. Travel required. Positions Available: Multiple

40.0 hr/wk. 9:00-5:00

Applicants send resume to:
Mr. Jeff Slosar, President
Triniti Corporation
1940 North 13th St., Ste. 231
Reading, PA 19604

Software Engineer: Apply knowledge of software architecture to perform software development tasks associated with modification, design, innovation, and debugging of software applications; provide input to team leader and/or manager to develop schedules, milestones, and priorities; develop the appropriate documentation for technical requirements and participate in design meetings and code reviews. May also be responsible for providing some guidance to other Software Engineers and programmers. Candidate must have MS in Computer Science or equiv. and 1+ years exp. in job offered and proficient in using Visual Age C++ and Open Class Library and GIS. $79k/yr. 40 hr/wk. Contact Mr. Glotzbach at 404-843-1000.

Software Engineer for custom software development & contract staffing company in Coconut Creek, FL. Dsgn & dvlp software modules using VC++ & MFC using object-oriented techniques; manage source code; make release versions & support exstng code. Master's in Computer Science and 1 year exp. in job offered. Rspnd to: HR Dept., Object Reality, Inc., 3721 W. Hillsboro Blvd., #D206, Coconut Creek, FL 33023

Software Engineers/Systems Analysts/Programmer Analysts (multiple positions) sought by computer s/w consultancy firm in King of Prussia, PA. Must have Bach or equiv and one yr relevant exp. Respond to: HR Dept, PARC Global, 190 East DeKalb Pike, King of Prussia, PA 19406.

Sr. Software Engineer, (Atlanta, GA): Research, design, develop, implement and test (full-life cycle development) computer software systems and related local, network and Internet-related financial Service software applications in conjunction with hardware systems. Utilize OOA, OOD and OO languages in client/server environment using developmental platforms and methodologies, networking protocols and relational databases. Perform bug verification, release testing, and beta support for assigned products. Liaise with hardware engineers to ensure interface between hardware and software, and operational and performance requirements of overall system. Provide technical support to junior team members as required. Must have Bachelor's Degree in Computer Science, Engineering or related field, or foreign degree equivalent, AND 5 years exp. in job offered (Sr. Software Engineer) OR 5 yrs exp. in full life cycle software development. Experience may have been obtained concurrently and must include: (i) 4 years experience using OOA end OOD in client/server environment using either Windows NT OR Mainframes OR UNIX developmental platform; (ii) 4 years development experience using either Java, OR C++ OR Forte object oriented language; (iii) 3 years experience using either UML OR Rational Rose development methodology; (iv) 3 yrs development experience using relational databases; and (v) 1 yr exp. using either TCP/IP OR HTTP networking protocols. Must have legal authority to work in the U.S. Send resume to: N. Bression-Page. S1 Corp. (REF: SSE5) 3390 Peachtree Road, N.E., Ste. 1700, Atlanta. GA 30326

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SOFTWARE ENGINEER to design, develop, test, implement and maintain application software using Visual Basic, Active Server Pages, Visual C++, Java, VBScript, JavaScript, Visual InterDev, Microsoft IIS, Microsoft SQL Server and Vignette V/5 e-Business Platform under Windows NT and UNIX operating systems. Require: M.S. degree in Computer Science, an Engineering discipline, or closely related field with two years of experience in the job offered or as a Systems Analyst. Competitive salary offered. Apply by resume to: Rafiq Jivani, President, Global Consulting Services, Inc., 3675 Crestwood Parkway, NW, Suite 350, Duluth, GA 30096; Attn: Job MM.

PROGRAMMER to develop, code, enhance and maintain application software in a client/server environment using MS Access, Visual Basic, Crystal Reports, SQL and Configuration Management Tools on Windows NT and LAN platforms; Administer databases, including optimization and fine-tuning, database recovery and trouble-shooting; Train users. Require: Two years of College Education in Computer Science/Information Systems, or a closely related field with one year of experience in the job offered. Competitive salary offered. Apply resume to: Tom Connelly, President, Mr. Plumber, 3065 Presidential Drive, Atlanta, GA 30340; Attn: Job IJ.

Compu-Solve, Inc. needs IT professionals with industry exp. (various skills combination reqd.) in WinNT Servers, NT workstations/DHCP, FNS, WINS & DNS Servers, Apache Web Server, CISCO Router 2600 Series, JetDirect, Sun Solaris (Sparc 10, 20), Linux, C++, Ingres 6.4, Oracle 8, Jdeveloper, JDBC, ODBC, IPX/SPX, NetBUI, Apple Talk, Veritas Volume Mgr., Uniplus 3.1, Unix SVR4.x, Sun Enterprise 4500, DRS 6000, FoxPro, Silk Rador, etc. Some positions require MS or equiv. CS, Engg, Math, Bus. Admin. or rel. field while others require BS or equiv. as above. Pay commensurate with exp. Foreign equiv of educ. &/or combination of educ/exp. will be accepted. Travel/relocation reqd. Resumes & salary expectations to HR, 306 5th Ave., 3rd Floor, New York, NY 10001 or jobs@csinyc.com.

Database Administrator (Metrics & Reporting) [Multiple Openings]:

Working independently, design, test, and implement business processes and computer systems to manage data sources, warehouses, and marts, specifically new operational and financial metrics applications that interface with multiple database management systems. Direct others in coding, testing and implementing data warehouse solutions, and making changes to the database management system to increase processing performance. Conduct in depth data mining and analysis on performance metrics. Evaluate operational and performance requirements, and provide innovative solutions to enhance system performance and usability.

Requires a BS in CS, Engineering, Math, Business, or related field, or foreign equivalent, along with 5 years' database administration experience is required. Experience must include:

1) SOL
2) PL-SOL
3) Oracle RDBMS
4) Oracle SQL Loader
5) Client/Server Applications
6) Financial Applications
7) Windows

Job site/interview: Colorado Springs, CO. $78,600/yr. 40 hrs./wk. Application by resume only. Send resume to job order number JL1117814, CO Dept. of Labor & Employment, Employment Programs, ATTN: Steve Wilkerson, Two Park Central Suite 400, 1515 Arapahoe Street, Denver, CO 80202-2117. EOE.

SOFTWARE ENGINEER to design, develop, test, implement and maintain application software in a mainframe environment using CICS, DB2, COBOL, VSAM, JCL, IMS DB/DC, XPEDITER, File-Aid, ENDEVOR and VIA SOFT under DOS and Windows NT operating systems; Plan and schedule project development and implementation, and manage resources and time. Require: Master's degree in Computer Science/Engineering, Business Administration, or a closely related field with two years of experience in the job offered or as a Programmer/Analyst. Competitive salary offered. Apply by resume to: Rajender Gaddam, Director of HR, Orpine Enterprises, LLC, 1004 Crooked Creek Court, Mableton, GA 30126; Attn: Job VR.

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Principal Engineer, Quality Assurance will be responsible for testing and quality assurance at all phases of the software development cycle. Will design test specifications and develop and implement test plans and test strategies. Will develop and execute test scripts to automate error detection. Will utilize knowledge of software quality assurance methodologies and quality/process implementation to ensure that business and financial software applications meet client specifications. Will analyze software applications in Windows NT and UNIX environments. Requires Master's Degree in C.S., Elect. Eng., Math or MIS and three (3) years experience in job offered or three (3) years experience in quality assurance engineering. Candidate must also possess demonstrated expertise in software development for financial applications in UNIX and Windows NT environments; demonstrated expertise in Oracle or Informix databases; and demonstrated expertise using test automation tools. Salary $90,000/yr; Mon-Fri, 9:00AM-5:00PM. Submit two (2) copies of resume to Case # 20011547, Labor Exchange Office, 19 Staniford Street, 1st Fl., Boston, MA 02114. EOE. Applicants must be U .S. workers eligible to accept employment in the United States on a full-time basis.

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IT CAREERS

SOFTWARE ENGINEER to design, develop, implement, test, maintain and support application software using DB2, UDB, SQL, CICS, File Aid, QMF, COBOL II, IMS, VSAM, JCL, ADABAS, SAS, XPEDITER, C, Pro*C, NetDynamics, Java, Erwin, Rational Rose and Microstrategies DSS Agent under MVS, Windows NT and UNIX operations systems. Require: M.S. degree in Computer Science/Engineering, Mathematics, or a closely related field with two years of experience in the job offered. Extensive travel on assignments to various client sites within the U.S. is required. Salary: $70,000 per year, 8:00 am to 5:00 pm, M-F. Apply by resume to: Sudhakara Ravoori, President, Sai Technical Services, Inc., 366 Avalan Way, Brandon, MS 39047; Attn: Job VT.

Software Engineer. Design and develop software applications, write and debug programs and scripts, build interface components and develop and document process flows, using object-oriented languages such as C++, Java and Visual Basic. Demonstrated ability designing and developing software programs using C++, Visual Basic. Knowledge working with VBScript, Java Script, Java. Knowledge working with Active X. $62,000/yr. 40 hr/wk. 9 a.m. - 5 p.m. Must have 2 yrs. exp. (or 2 yrs. Exp in related occupation of Programmer Analyst) and B.S. in Comp. Sci., Eng., rel. field/equiv. Send 2 resumes: Case #20011397, Labor Exchange Office, 19 Staniford Street, 1st fl., Boston, MA 02114.

SOFTWARE ENGINEER

Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in C++, Java, JavaScript and Oracle. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of C++, Java, JavaScript and Oracle. Salary: $67,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Ms. Barbara Cole, Greene County Team PA Careerlink, 4 West High Street, Waynesburg, PA 15370, Job No. WEB160889.

Applications Engineer will work in conjunction with sales and engineering groups and external customers to test and evaluate automation equipment for the semiconductor industry. Assist in engineering set up and building of equipment. Test internal and external interfaces and integrate subsystems. Analyze and improve sub-system operation to meet product performance specifications. Perform product demonstrations for customers. Requires Bachelor's Degree in C.S., Eng. or Math and two (2) years experience in job offered or two (2) years experience in production engineering or technical support; or, in the alternative, no degree and four (4) years experience in Job Offered or four (4) years experience in production engineering or technical support. Position requires demonstrated expertise in development and testing of robotic automation equipment; and demonstrated expertise using vision inspection and calibration equipment. Salary $65,000/yr; M-F, 9:00AM-5:00PM. Submit two (2) copies of resume to Case # 20011548, Labor Exchange Office, 19 Staniford Street, 1st Fl., Boston, MA 02114. EOE. Applicants must be U .S. workers eligible to accept employment in the United States on a full-time basis.

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San Francisco, CA 94105
Attn: Jos Barnett
Fax: 415-541-0224. EOE
E-mail:Jos_Barnett@splwg.com

www.splwg.com

PROGRAMMER/ANALYST to analyze, design, develop, test, implement, maintain and support application software using Visual Basic, Oracle, SQL Server, Java Script, PL/SQL and Java under UNIX and Windows NT operating systems. Require: B.S. degree in Computer Science/Engineering, Mathematics, or a closely related field with two years of experience in the job offered or as a Systems Analyst. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Rafiq Jivani, President, Global Consulting Services, Inc., 3675 Crestwood Parkway, NW, Suite 350, Duluth, GA 30096; Attn: Job AL.

IT Professionals needed, La-Grange, IL based company has positions available for qualified candidates possessing MS/BS or equivalent and/or relevant work experience. Work with some of the following: IIS, ASP, Oracle, PL/SOL. Fax resume to Real Info LLC at 708-588-2085.

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Update on Immigration Laws Affecting Your Professional IT Staff
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Xtreme Recruiting: How We Got Here and Where We Go from Here
MICHAEL MCNEAL
PURECAR8ON

Best Practices of Retention
CATHY PETERSON
ANALYSTS INTERNATIONAL

Retention: Who's Responsible & How to Improve It
KEVIN WHEELER
GLO8AL LEARNING RESOURCES, INC.

Automated Screening: Guaranteed Success or Formula for Failure?
DR. WENDELL WILLIAMS
SCIENTIFICSELECTION

Panel Discussion: Diversity - What You Need to Do to Tap "All" the Top Talent
PRESTON EDWARDS (MODERATOR)
IMDIVERSITY.COM

Panel Discussion: What You Really Need to Know About Resume Management Systems or, How to Tell "Real Ware" from "Vaporware"
MARK MEHLER (MODERATOR)
MMC GROUP

Town Hall Forum: Pundits, Puns and Pulled Punches
MARK JESKE (MODERATOR)
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SENIOR SOFTWARE ENGINEER to design, develop, implement and maintain application software using SOL Server, Sybase, Oracle and Visual Basic under UNIX and Windows operating systems. Require: M.S. degree (or equivalent) in Computer Science, an Engineering discipline, or a closely related field with two years of experience in the job offered or as Programmer. A B.S. degree with five years of progressively responsible experience will be accepted in lieu of the M.S. degree and two years of experience. Competitive salary offered. Send resume to: Narayan Swamy, President, Professional Software Consultants, Inc., 320 Waehwood Court, Alpharetta, GA 30022; Attn: Job SC.

"Analyst Programmer in a consulting environment. Contact: Strategic Vision Consulting, Inc. 12416 Magnolia Blvd., #10, Valley Village, CA 91607 or frank.leal@att.net"

Infopro Systems, Inc. has immediate multiple openings for IT professionals with a min 2 yrs. exp. in (various skills combination reqd.) ORACLE 7.x, Turbo Analyst, Relational Designer, C, Pro*C, Unix Shell Scripts, Unix IRIX 4.0.5. Some positions require MS or equiv. CS, Engg., Math, Bus. Admin, or rel. field while others require BS or equiv. as above. Pay commensurate with exp. Foreign equiv of educ. and/or combination of educ/exp will be accepted. Travel/relocation reqd. Resumes & salary expectations to HR, 805 Washington Dr, Ste. 'A', Arlington, TX 76011

SOFTWARE ENGINEER to design, develop, implement, test, maintain and support application software using C, C++, Visual Basic, Oracle, Shell Scripts and MS Access under UNIX and Windows NT operating systems. Require: M.S. degree in Computer Science, an Engineering discipline, or a closely related field with two years of experience in the job offered or as a Programmer/Analyst. Competitive salary offered. Apply by resume to: Rafiq Jivani, President, Global Consulting Services, Inc., 3675 Crestwood Parkway, NW, Suite 350, Duluth, GA 30096; Attn: Job MJ.

Software Engineer. Design & implement graphics engines and AI engines for gaming platforms using Assembly, C/C++. Design & Implement simulation and AI of autonomous/semiautonomous robot colonies. Req: Masters degree in Computer Sci, Computer Eng. or Electrical Eng. 40-hr. wk. Job/Interview Site: El Segundo, CA. Please send resume to Treyarch, 100 N Sepulveda Blvd. Suite 1100, El Segundo, CA 90245

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Send resume to H.R. Infoserve Technologies Corp. 79-37 Cooper Ave. Glendale, NY 11385

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Information Management (IM) Division Director

Summary: The Information Management (IM) Division Director will report to the Deputy Laboratory Director for Business Administration and Outreach. The IM Division Director is the senior Laboratory official responsible for identifying and meeting the information and communication needs of the institution now and for the future. Partner with customers to ensure that the immediate and long-term information needs of the institution are met. Develop and promote long-range IM goals for the Laboratory, and represent IM activities to internal and external sponsors. Lead the development of an advanced records management capability to preserve currently generated and archival data for the Laboratory as required by DOE and as represented by best business practices. Develop an investment strategy that will enable IM to apply modern technologies to information practices. Remain current within technical areas of responsibility, and ensure that IM develops capabilities that keep pace with the explosion of information technology.

The IM Division Director provides for the leadership, operation, and management of the Division. Responsible for planning, developing, and managing the capabilities and resources of the Division, including ES&H, security, facilities, finances, workforce diversity and excellence, and employee development. Set the strategic and tactical direction for the Division, and oversee the development and execution of the Division's programmatic activity.

Required Skills: Demonstrated record of success in leadership and management of an information services organization incorporating at least two of the Division's major functional areas: enterprise information infrastructure, customer service/technical assistance, information and records management, communication arts and services, and imaging services. Demonstrated success in working effectively in and being committed to a strong customer-focused environment. Experience in the innovative application of information technologies to the solution of organizational problems. Successful track record in strategic and tactical planning, program development and execution, and program management. Demonstrated effective interpersonal and written and verbal communication skills. Demonstrated commitment to the organizational goals of assuring the health and safety of workers and the public, environmental protection, work force excellence and diversity, employee development, responsible financial stewardship, and operational security. Ability to obtain a DOE Q Clearance, which usually requires US citizenship.

Desired Skills: Experience with the management and administration systems and policies and practices of the Laboratory, DOE, and UC. Active or reinstateable Q Clearance.

Education: MS in Computer Science, Management Information Systems, or a related field, or equivalent combination of education and experience in areas directly related to the Division's mission.

To Apply: Submit a comprehensive resume and cover letter that addresses the specific required and desired criteria, referencing "CompWor016823", via email to **jobs@lanl.gov**, or via postal service to the: Resume Service Center, Mailstop MSP286, Los Alamos, NM 87545.

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2 Positions - Senior Programmer. Job Location: Wilkesboro, North Carolina. Duties: Create, code and test complex applications, Analyze complex user requests and develop applications, Identify system procedures and requirements, Develop instructions for user application, Analyze, review, test and upgrade system capabilities, Execute diagnostics and perform maintenance on computer systems, Detect and correct syntax or logic errors during testing of systems and programs, Analyze, replace, and modify codes to solve system problems or correct errors, Monitor, analyze, solve and train users on actions to take to resolve problems, Monitor program performance. Requires: (1st Position) Master's Degree or foreign equivalent in Computer Science, Engineering, Information Science or a related field, plus 3 years experience in job offered or as a Programmer/Analyst. Experience which may have been obtained concurrently must include 3 years operating in COBOL, CICS, JCL and DB2 environments. In lieu of Master's will accept Bachelor's Degree or foreign equivalent and 5 years progressive experience. (2nd Position) Master's Degree or foreign equivalent in Computer Science, Engineering, Information Science or a related field, plus 2 years experience in job offered or as a Programmer/Analyst or Software Engineer. Experience which may have been obtained concurrently must include 2 years operating in VSAM, JCL, and CICS environments. EOE. Send resume to Paul Norwood, Lowe's Companies, Inc., P.O. Box 1111, North Wilkesboro, NC 28656-0001.

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ABEROEEN GROUP INC 14,32
AOIOAS AG 32
ADIDAS AMERICA INC. 32
AOVANCED INFORMATION SERVICES INC 40
AETHER SYSTEMS INC 21
AFLAC INC 44
AIR CANAOA e
AIRBUS INDUSTRIE e
ALCATEL 82
ALLAIRE CORP 61
ALLSTATE INSURANCE CO 1
ALSTON & BIRD LLP 1
AMADEUS GLOBAL TRAVEL DISTRIBUTION 7
AMAZON COM INC. 46
AMDAHL CORP 22
AMERICAN INTERNATIONAL GROUP INC. 20
ANALOG DEVICES INC S4
APPLE COMPUTER INC 60
AT&T CORP. 7
AT&T WIRELESS SERVICES INC 22
ATG INC 7
AVIS GROUP HOLDINGS INC S6,57
AVNET INC 62
BANCBOSTON VENTURES 61
BAXTER HEALTHCARE CORP 1
BAYERISCHE MOTOREN WERKE AG 60
BEA SYSTEMS INC 7,56,57
BELL HELICOPTER TEXTRON INC 61
BMC SOFTWARE INC 50
BRANTLEYHOUSE LLC 43
BROADVIEW INTERNATIONAL LLC 46
BROADVISION INC 7
BUCHANAN ASSOCIATES 61
CALIFORNIA DEPARTMENT OF CONSUMER AFFAIRS 7
CALIFORNIA ISP ASSOCIATION 7
CANOIDHOSTING COM INC 1
CAROAY INC 44
CARRIBA'S ITALIAN GRILL 1
CARNEGIE MELLON UNIVERSITY 40
CATALOG COM INC 12
CATHAY PACIFIC AIRWAYS LTD 6
CAVEO TECHNOLOGY LLC 54
CDI CORP 1
CELLNT COMMUNICATIONS LLC 10
CELLULAR TELECOMMUNICATIONS &
INTERNET ASSOCIATION 22
CENOANT CORP. 56
CENTRIC SOFTWARE INC e
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CHECK POINT SOFTWARE TECHNOLOGIES LTD. 52
CHICAGO MERCANTILE EXCHANGE INC. 1
CINGULAR WIRELESS 21
CISCO SYSTEMS INC. 1,14,24,40,50,52,56,74
CITIBANK OVERSEAS INVESTMENT CORP. 40
CLAIMPLACE INC. 20
CMGI INC. 24
COALITION AGAINST UNSOLICITED COMMERCIAL E-MAIL 10
COMMUNICATION INTELLIGENCE CORP 46
COMPAQ COMPUTER CORP 14,20,54,57
COMPUBANK 6
COMPUTER ASSOCIATES INTERNATIONAL INC. 8,50
COMPUTER SCIENCES CORP 36,40
COMPUTER SECURITY INSTITUTE S4
COMPUTER TASK GROUP INC. 62
CONXION CORP 1
CORPORATE EXPRESS INC 21
CUTSEY BUSINESS SYSTEMS LTD 32
D H BROWN ASSOCIATES INC 14
DELL COMPUTER CORP 14,54
DELTA AIR LINES INC 37
DEUTSCHE BANK AG. 40
DEUTSCHE SOFTWARE (INDIA) LTD 40
DIGITAL INGENUITY INC. 36
DIGITAL RIVER INC. 44
DOLLAR GENERAL CORP 46
DOMAINZOO COM INC. 12
DORSEY & WHITNEY LLP 1
DOUBLECLICK INC. 24
EBLAST VENTURES S6
EFUNDS INC 50
EHOBBIES COM INC 32
EMC CORP 22,50
ENTRUST TECHNOLOGIES INC 10
ENTRUST NET INC 10
EPICOR SOFTWARE CORP 32
EPYLON CORP 46
ETIENNE AIGNER INC 1
ETRADE BANK 7
ETRAOE GROUP INC. 7
EVINEYARO 32
EXITNOW INC. 1
EXOOUS COMMUNICATIONS INC. 1
EXTENOEO SYSTEMS INC. 22
FAIRCHILD SEMICONOUCTOR INTERNATIONAL INC. 62
FBI. 1,73
FEOERAL COMMUNICATIONS COMMISSION. 6
FEOERAL TRADE COMMISSION 7,12,25,73
FEOEX CORP. 21
FIDELITY INVESTMENTS 10
FIRST OATA RESOURCES 37
FORD MOTOR CO e
FORRESTER RESEARCH INC. 14,20
FUJITSU LTD. 22
FUJITSU SOFTWARE TECHNOLOGY CORP 22
FUJITSU PC CORP. 54
FURNISHNET INC. 1
GARTNER INC. e,36,46,50,60
GATEWAY INC 14
GE GLOBAL EXCHANGE SERVICES 7
GENERAL ELECTRIC CO 24
GEODESIC SYSTEMS INC. 46
GFI SOFTWARE LTD. 52
GIGA INFORMATION GROUP INC. 14,60,61
GOLDMAN SACHS & CO 61
GOMEZ INC. 61
GORDON BROTHERS 36
GUARDENT INC. 16
HALLMARK CARDS INC. 44,45
HEALTH CARE FINANCING ADMINISTRATION 60
HEWLETT-PACKARD CO 14
HOME SHOPPING NETWORK INC S6,57
HSN.COM S6
IBM 6,7,14,20,22,50
IDC 7,27,61
IDENTRUS LLC 16
IDG GLOBAL COMMUNICATIONS 1
INFINIBAND TRADE ASSOCIATION 14
INFINITY CONSULTING GROUP 1
INFORMATION TECHNOLOGY ASSOCIATION OF AMERICA 12
INFORMIX CORP 62
INFOSYS TECHNOLOGIES LTD 40
INGERSOLL-RAND CO 24
INGRAM MICRO INC. 61
INSUREHITECH COM 20
INTEL CORP 14
INTERNATIONAL DATA GROUP 1
INTERNATIONAL MARITIME COMMUNICATIONS ORGANIZATION 8
INTERNATIONAL QUALITY AND PRODUCTIVITY CENTER 1
INTERNATIONAL STANDARDS ORGANIZATION 40
INTERNET CORPORATION FOR ASSIGNED NAMES AND NUMBERS 12
INTERNET INITIATIVE JAPAN INC. 14
INTERNET POLICY INSTITUTE. 32
INTERNET TRADING TECHNOLOGIES INC. 1
INTIRA CORP S6
INTRUSION.COM INC. S8
IRIDIUM SATELLITE LLC 10
JUPITER MEDIA METRIX INC. e
KEYNOTE SYSTEMS INC. 61
KLEINER PERKINS CAUFIELD & BYERS 12
KOOIAK VENTURE PARTNERS 61
LABRANCHE & CO. 1
LANOS' END INC. 37
LERNOUT & HAUSPIE SPEECH PRODUCTS NV 6
LIEKAR STRATEGIC SOLUTIONS CORP. 6
LM ERICSSON TELEPHONE CO. 22
LOCKHEED MARTIN CORP. 61
LOTUS DEVELOPMENT CORP. 10,14,37
LUCENT TECHNOLOGIES INC. 61
MCKINSEY & CO 40
MERANT PLC. 57
MERCURY INTERACTIVE CORP 46,61
MERIDIEN RESEARCH INC. 1,20
MGM MIRAGE INC. 46
MIT SLOAN SCHOOL OF MANAGEMENT 42
MICROSOFT CORP. 7,14,16,52,56,60
MOBILE INSIGHTS INC. 10
MONTGOMERY WARD LLC 1
MORGAN STANLEY DEAN WITTER & CO. 10
MOTOROLA INC. 1,6,10,40,61
MULTEX COM INC. 6
NANCYDREW COM 73
NASDAQ STOCK MARKET INC. 20
NATIONAL ASSOCIATION OF SOFTWARE AND SERVICE COMPANIES 40
NATIONAL SECURITY AGENCY 27
NATIONAL SEMICONDUCTOR CORP 1
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION 6
NATIONAL UNION FIRE INSURANCE CO. 20
NATIONWIDE FINANCIAL SERVICES INC. 1
NETBANK INC 6
NETWORK ASSOCIATES INC. 52
NEWFRONT PRODUCTIONS INC. 73
NEXTEL COMMUNICATIONS INC. 6
NIELSEN MEDIA RESEARCH INC 73
NOKIA CORP 22
NORTEL NETWORKS CORP 22,40
NORTHPOINT COMMUNICATIONS GROUP INC. 7
NTT DOCOMO INC. 6,22
NVIDIA 60
OBJECTIVE SOLUTIONS INTERNATIONAL 1
OFFICE DEPOT INC 21
OFFICEMAX INC 21
OLO REPUBLIC NATIONAL TITLE INSURANCE CO. 46
ONLINENIC INC. 12
OPENGL ARCHITECTURE REVIEW BOARO 60
ORACLE CORP. 14,24,46,50,62
OREGON DEPARTMENT OF CORRECTIONS 24
OUTBACK STEAKHOUSE INC. 1
PALM INC. 21,22
PANOESIC LLC 32
PAUL, HASTINGS, JANOFSKY & WALKER LLP 7
PEOPLESOFT INC. 62
PEPSICO INC. 36
PFIZER INC. 14
PHOENIX GLOBAL SOLUTIONS PVT. 40
PHOENIX HOME LIFE MUTUAL INSURANCE CO 40,42
PLUMTREE SOFTWARE INC. 62
POLARIS VENTURE PARTNERS INC 61
PRATT & WHITNEY 24
PROCTER & GAMBLE CO. 36
PROGRESS SOFTWARE CORP 32
QUALCOMM INC. 6
RAGING MOUSE INC. 24
RATIONAL SOFTWARE CORP 57
RECOURSE TECHNOLOGIES INC. S8
REGISTER COM INC. 12
REPUBLIC MORTGAGE INSURANCE CO 44
RETAILEXCHANGE.COM INC. 36
RICH PRODUCTS CORP 62
SAP AG 10,62
SAPIENT CORP. 40
SCHOLASTIC CORP 22
SECURITIES AND EXCHANGE COMMISSION 1,22
SEE'S CANDIES INC. 44
SEGUE SOFTWARE INC 46
SILICON GRAPHICS INC 60
SMART INTERIORS INC. 24
SNET SYSTEMS CORP S8
SOFTWARE ENGINEERING INSTITUTE 40
SPACENET INC. 46
ST PAUL TECHNOLOGY 20
STONESOFT CORP S2
SUN MICROSYSTEMS INC. 6,14,20,50,58
SYBASE INC. 62
SYMBOL TECHNOLOGIES INC. 21
SYNDICATED COMMUNICATIONS INC 10
SYNXIS CORP 46
TELOCITY INC. 7
TENZING COMMUNICATIONS INC 6
THE BOEING CO 8,10,24
THE CHILDREN'S HOSPITAL OF PHILADELPHIA 36
THE DEPOSITORY TRUST & CLEARING CORP 20
THE FELD GROUP 37
THE HARTFORO FINANCIAL SERVICES GROUP INC 20
THE MCGRAW-HILL COS 61
THE MOTLEY FOOL INC. 8
THE NETPLEX GROUP INC. 1
THE ST PAUL COS. 20
THE STEVE POHLIT COS 1
THE YANKEE GROUP 6,50
TOASTMASTERS INTERNATIONAL 37
TOPTIER SOFTWARE INC 10
TOWERGROUP. 20
TRANSPORTATION COM 40
U.S. DEPARTMENT OF COMMERCE 1,7
U.S DEPARTMENT OF DEFENSE 8,10
U.S DEPARTMENT OF JUSTICE 6
U.S DEPARTMENT OF LABOR 14
U.S. DEPARTMENT OF THE TREASURY 1
U.S. INTERNET INDUSTRY ASSOCIATION 10,12
U.S. NAVY 60
UNISYS CORP. 14,20
UNITED PARCEL SERVICE INC 21
UNITED WAY OF AMERICA 1
UNIVERSITY OF NEBRASKA AT OMAHA 8
UNIVERSITY OF PENNSYLVANIA 73
VANTAGE POINT VENTURE PARTNERS 24
VANTIVE CORP 62
VERIO INC. 7
VERISIGN INC. 16
VIANT CORP 22
VIGNETTE CORP. 61
VIRGIN ATLANTIC AIRWAYS LTD 8
VISA USA INC 50
VISTEON CORP 6,40
VISTEON SOFTWARE OPERATIONS 40
VOLVO CARS OF NORTH AMERICA INC. 8
WACHOVIA CORP 7
WATCHFIRE CORP 61
WATTS HUMPHREY SOFTWARE QUALITY INSTITUTE 40
WEBCRITERIA INC 61
WILLIAM M MERCER INC 1
WIRELESS INTERNET & MOBILE COMPUTING 8,22
XO COMMUNICATIONS INC 7
YACK COM INC 61

Kids' Web Sites Not Meeting FTC Guidelines

Many sites fail to follow COPPA guidelines

BY JENNIFER DiSABATINO

ALMOST A YEAR after the Federal Trade Commission (FTC) passed guidelines for protecting children's privacy on the Internet, many Web sites aren't complying with the law, according to a report from the University of Pennsylvania's Annenberg Public Policy Center.

The center studied how well sites have conformed to the Children's Online Privacy Protection Act (COPPA), which went into effect last April. The study used data fromNew York-based Nielsen Media Research Inc.'s Nielsen/NetRatings service to determine which sites were most visited by children.

Of the 162 sites surveyed, 17 collected information about the users abut didn't post links to their privacy policies from their home pages. Of those sites that did have a link, 44% followed FTC guidelines by putting the link in a different font; only 6% put the link in a different color, and 68% put the link at the bottom of their home pages.

A key component of complying with the COPPA guidelines is making privacy policies clear and easily accessible for parents, said Joseph Turow, professor of communications and the author of the report. He said most sites still don't meet these criteria.

Steve Schaffer, CEO of Newfront Productions Inc. in San Francisco, which runs several Web sites, including Nancy Drew.com, said the regulations are killing Internet sites geared toward children.

"What is happening now is the legitimate kids' sites are either going out of business or they're turning into teen sites [which don't come under COPPA guidelines], and then the kids are going to those sites," Schaffer said.

"If you follow the policies, you still get called out because somebody interprets the policy differently than you do," he said.

Nancydrew.com is one of the sites singled out by the Annenberg study for not posting a link to its privacy policy on its home page.

Schaffer also argued that the classification of a home page is meaningless, because what users might think is a Web site's home page may not be. ◗

Continued from page 1

Pornography

— or even the likes of Real Incest or Photovoyeur.com. In fact, two sites — one a restaurant, the other a chapter of the United Way — asked to switch providers after their hoster's main customer base was disclosed.

"I absolutely believe there are dangers to non-adult businesses hosted alongside pornographers," said Chris Brandon, founder of the Virginia-area Internet investigation firm, Brandon Internet Services Inc. "Even if it's just having their names mixed up with an investigation into illegal content or spamming."

All IT managers contacted for this report said they were unaware that their servers were housed in the same facilities as adult sites. Their responses ranged from nonchalance because of the size of the adult online industry to indignation about the potential impact on their companies' reputations.

Carriba's Italian Grill, for example, is taking its business elsewhere after learning from a *Computerworld* reporter that its Web developer, ExitNow Inc. in Redington Beach, Fla., had moved its Web hosting services to a company that hosts primarily hard-core porn, said Joe Kadow, vice president at Outback Steakhouse Inc. in Tampa, Fla., Carriba's parent company.

Brian Mintz, president of ExitNow, said it never occurred to him that moving his clients to Tampa Bay, Fla.-based CandidHosting.com Inc. would create an "appearance of impropriety," because his customers are on their own servers. The company did so in January to reduce costs, increase bandwidth and improve reliability. CandidHosting has particularly fat pipes to service video streaming at high-profile live sites like Voyeurdorm.com.

"We made a mistake," said Mintz. "We host churches, charitable organizations and hundreds of businesses." Last week, it moved the United Way to a new hosting provider at the nonprofit organization's request. (The United Way didn't return phone calls.) ExitNow also plans to move all its customers to a new hosting center in the long term.

But if Santa Clara, Calif.-based Exodus Communications Inc., one of the largest hosting providers in the country, is any indication, this practice is fairly widespread. A DNS search on one of Exodus' domain servers turned up a *Computerworld* affiliate, IDG.net, and National Semiconductor Corp. in Santa Clara alongside SexFarms5.com and LivePenis.com.

The practice of co-hosting nonpornography and pornography businesses in the same center is so common that IT managers at International Data Group (IDG) and National Semiconductor weren't surprised when they found out about their less-savory business neighbors.

"Hosting services mix up pornography with nonpornography businesses all the time. Just look at some of the big names out there," said Steve Pohlit, president of The Steve Pohlit Cos., a Web development and hosting firm in Largo, Fla.

Pohlit defended this practice, adding that the adult industry has been at the forefront of technology development because it's very profitable. Besides, he said, if service providers discriminate about who they host based on their content, it would be the same as saying, "We don't subscribe to your religious beliefs."

To find out who your DNS neighbors are, go to http://packetderm.cotse.com and click "lookup tools."

But others, like Brandon, claimed that co-locating adult sites with other business sites can violate the hosting providers' own terms of use.

"These providers make their customers sign acceptable use policies stating 'no porn' and 'no spam.' Then they turn around and host them alongside pornographers. They're violating their own contracts," he said.

Eye of the Beholder

Exodus' terms, for example, prohibit posting or distributing "obscene" material. But " 'Obscene' is that gray area of the First Amendment," said Jeff Debalko, vice president of global commerce at IDG Global Communications, the technology services firm that supports Boston-based IDG, *Computerworld*'s parent company.

Neil Casteel, manager of information security at National Semiconductor, said service providers are blinded to their own contractual obligations by the big profit of the adult entertainment industry.

"It would be interesting to see if Exodus even cares who they host," Casteel said. "My guess is Exodus is probably more interested in the money the pornography providers are throwing at them."

In a written response to *Computerworld* queries, Exodus stated only that its customers are kept on separate servers within the data cages.

But not all Web hosters accept pornography business. A handful of service providers, like Conxion Corp. in Santa Clara, decided to forgo hosting adult sites altogether, despite their high profitability, according to Steve Suarez, Conxion's information security director.

FurnishNet Inc., a online furniture retailer and Conxion customer in San Francisco, finds Conxion's policy a good side benefit but not necessarily mandatory, said Kevin Johnson, the site's manager of technology.

"Would we prefer that our hosting provider not do any pornography business? Sure," he said. "But the only driver that would make us change providers is if our customers demanded us to. And even then, we'd have to rethink morals and ethics guidelines, not just for us, but for all of our partners and vendors." ◗

Porn Is King

Total online content revenues in the U.S. and western Europe:

Genre	1999	2000	2001
Porn	$1.4B	$1.8B	$2.3 B
Games	$92M	$150M	$250M
Sports	$25M	$32M	$45M
Music	$12M	$17M	$23M
Others	$340M	$510M	$700M

SOURCE DATAMONITOR

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FRANK HAYES/FRANKLY SPEAKING

Mum on Privacy

THE EUROPEAN COMMISSION (EC) thinks its privacy rules for U.S. companies doing business in Europe are no big deal. "These concerns are unfounded," one EC official said last week. That's sort of like the guy who doesn't own a cell phone saying he thinks a law banning cell-phone use while driving is no big deal. He's not the one who'll have to change what he does.

In the U.S., where customer privacy is a joke, meeting tough European standards could require big changes — especially in how IT shops handle data.

And of course, we're not allowed to get ready for it.

Getting ready would be impolitic. Most big U.S. companies are fighting the European privacy standards. Our corporate leaders insist the EC standards are impractical and expensive and maybe even a threat to our national sovereignty.

So it wouldn't look good for IT shops to be figuring out how to apply the standards to our systems, or calculating how much it'll actually cost. That might appear to run counter to the official corporate position.

Trouble is, if the political winds change and for legal or business or public relations reasons our bosses decide that customer privacy is a good idea after all, they'll want it done right now. And finding, filtering and giving customers access to all the data you hold about them is no overnight project ["Frankly Speaking," Nov. 6]. To do it right, we should be starting now.

So while politicians and bureaucrats and lobbyists and executives haggle and horse-trade over these privacy standards, we're stuck with what appears on the surface to be a very nasty choice: We can look bad today for breaking ranks, or we can look bad tomorrow for failing to think ahead.

Or we can be sneaky.

Suppose — just suppose, mind you — that we did a little stealth microproject to see how many foreign customers we've got, and what data we've got about them. That's just due diligence, really. In case our executive team wants to know that information on short notice.

And say we make it a point to track down where all that foreign customer data resides on our systems. That's really just good data-management practice, right? As we all found out from our Y2k projects, there's no such thing as a data inventory that's too up-to-date.

Suppose — just suppose, mind you — we get a little sneaky about privacy.

Then what if we ran a hypothetical? Something like this: How would we create a secure application so that, say, executives or sales reps on the road can access that customer information across the Web? That wouldn't be undercutting the company's official stand, would it? We're just making sure we're ready in case we want to give someone Web access to the data.

At least, that's our story — and it's one we can stick to.

In fact, with a little thought and creativity, we can come up with perfectly reasonable explanations for lots of very practical activities that, purely by coincidence, would come in very handy in case we have to reverse course and implement some kind of data privacy scheme that looks a lot like the EC requirements.

That may sound disingenuous, duplicitous, even dishonest. And, it is. But management won't thank us for honesty and openness on this one. And if the bosses change their minds, they won't thank us for having taken them at their word.

We've got to be ready. That's our job, to create the systems our business needs — even if today's official position is that we'll never need those particular systems.

And for now, when it comes to privacy, we've just got to do it in private. ◗

Hayes, Computerworld's senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

SHARK TANK

CUBICLE DWELLER moves his own PC three cubes down to his new home over the weekend. But on Monday, he sticks his head in this IT pilot fish's door: He can't log on to the LAN. A short trek back to the cube, and the fish spots the trouble: The phone cord is plugged into the computer's Ethernet port. As the fish starts fixing the problem, user has an epiphany: "That's probably why my phone doesn't work, either!"

OUTSIDE SALES specialist can't connect to the Internet with her new Windows Me laptop, so she calls service provider's support desk. After some troubleshooting, tech identifies the problem: "You're running the wrong OS. Get your IT department to install another OS," he instructs. "Then we can help you."

MARKETING VP gets the brilliant idea to print mouse pads with the company logo for the back-office troops at one remote division. But he's red-faced when they arrive: Turns out this office doesn't have mouse-based PCs yet. "What should I tell them?" he snarls. IT pilot fish helpfully suggests, "Tell them they're stadium seats?"

CIRCUIT COURT JUDGE calls the help desk demanding to know why he should ever have to change his password. For security? a helpful IT pilot fish suggests. "I have armed guards around me at all times," hizzoner fumes. "My courtroom is completely safe!"

REMOTE USER is apparently trying to troubleshoot a connection problem in a wiring closet, says support pilot fish who only heard his colleague's side of the conversation. "OK, the UPS has a green light? That's good. Now we need to find a box that says 'Cisco' on it. You found it? Good. What do you mean, it's empty? No, no, that's the shipping box it came in. . . ."

PAPER JOCKEY calls to complain that a report generated by the IT shop has an error. OK, says IT pilot fish, I'll be happy to review it, but I'll need to see the report – can you fax it to me? "I will fax it to you," says the dubious user, "but you need to make sure you fax it back to me because it's the only copy of the report I have."

Send me your story, and I promise to send it right back: **sharky@computerworld.com.** You get a sharp Shark shirt if your true tale of IT life sees print – or if it shows up in the daily feed on the Web at *computerworld.com/sharky.*

The 5th Wave

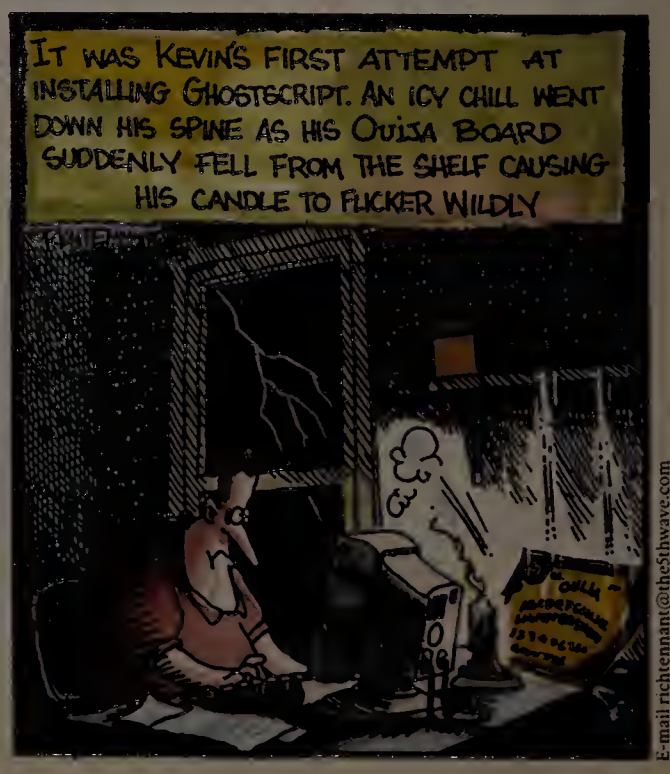

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fig. 1.1: Storage screaming for your attention (metaphor)

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